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Your feedback plays a critical role in the evolution of our products and you can contact us – reachus@pearson.com. We look forward to it.

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Electrical Engineering

Basic Electrical Engineering

Hughes Electrical and Electronic Technology

Edward Hughes, Revised by John Hiley, Keith Brown and Ian McKenzie

Pages: 1040

Year: 2025

About the Book

All engineers need to understand the fundamental principles of electrical and electronic technology. This best-selling text provides a clear and accessible introduction to the area, with balanced coverage of electrical, electronic and power engineering. Now in its twelfth edition, Electrical and Electronic Technology is a must-have text for all engineering students requiring a comprehensive introduction to electrical and electronic engineering. It is also appropriate as a reference for practitioners and technicians working in this, or any other engineering discipline.

Features

- Comprehensive introduction to the fundamental principles of electrical technology, including coverage of fibreoptics, induction motors and operational amplifiers
- Chapter objectives, highlighted key equations, summaries of formulae, and key terms and concepts to help reinforce learning
- Contains numerous worked examples and end-of-chapter problems to encourage self-directed learning and test understanding
- New material on transmission line theory, 2-port networks, sensors and actuators, and on renewable generation.

Contents

Section 1 Electrical Principles

1. International System of Measurement
2. Introduction to Electrical Systems
3. Simple DC Circuits
4. Network Theorems
5. Capacitance and Capacitors
6. Electromagnetism
7. Simple Magnetic Circuits
8. Inductance in a DC Circuit
9. Alternating Voltage and Current
10. Single-phase Series Circuits
11. Single-phase Parallel Networks
12. Complex Notation
13. Power in AC Circuits
14. Resonance in AC Circuits
15. Network Theorems Applied to AC Networks

Section 2 Electronic Engineering

16. Electronic Systems
17. Passive Filters
18. Amplifier Equivalent Networks
19. Semiconductor Materials
20. Rectifiers and Amplifier Circuits
21. Interfacing Digital and Analogue Systems
22. Digital Numbers
23. Digital Systems
24. Signals
25. Data Transmission and Signals
26. Communications
27. Fibreoptics

Section 3 Power Engineering

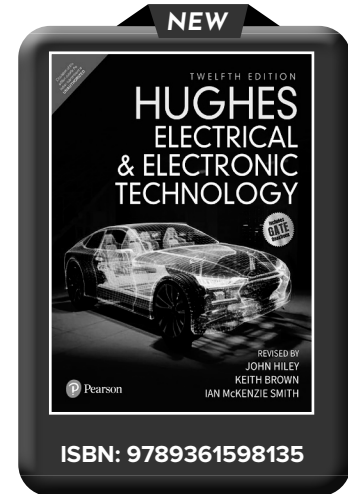
28. Multiphase Systems
29. Transformers
30. Introduction to Machine Theory

31. AC Synchronous Machine Windings

32. Characteristics of AC Synchronous Machines
33. Induction Motors
34. Electrical Energy Systems
35. Power Systems
36. Direct-current Machines
37. Direct-current Motors
38. Control System Motors
39. Motor Selection and Efficiency
40. Power Electronics

Section 4 Measurements, Sensing and Actuation

41. Control Systems, Sensors and Actuators
42. Electronic Measuring Instruments and Devices



About the Author(s)

Dr Keith Brown lectures in the Department of Electrical, Electronic and Computer Engineering at Heriot-Watt University, where Dr John Hiley also lectured until his retirement in 2013.

The late **Edward Hughes** was Vice Principal and Head of the Engineering Department at Brighton College of Technology. He was a fellow of Heriot-Watt University.

The late **Ian McKenzie Smith** was formerly Deputy Principal, Stow College, Glasgow.

Electrical Engineering Fundamentals, 2/e

Vincent Del Toro

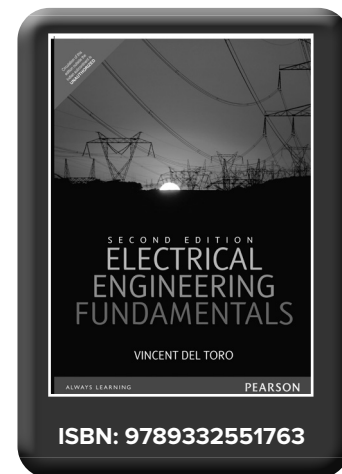
Pages: 940

Year: 2015

About the Book

Electrical Engineering Fundamentals focuses on the five principal zones within the discipline of electrical engineering. The author also develops new content that is more attuned to the needs of the students and uses new fundamental laws to clarify the concepts and ideas in a more structured manner.

The second edition of the book, Electrical Engineering Fundamentals is intended to be put in use where Del Toro's other text, Principles of Electrical Engineering is being used. As a text, although it is primarily designed for students of electrical engineering, non-majors can subscribe to the text easily because of its accessible content. The student can use the Classical Method or the Laplace Transform Method to solve problems.



Contents

1. The Fundamental Laws of Electrical Engineering
Part One: Electric Circuit Theory
2. The Circuit Elements. Elementary Network Theory
3. Circuit Differential Equations
4. Forms and Solutions. Circuit Dynamics and Forced Responses
5. The Laplace-Transform Method of Finding Circuit Solutions
6. Sinusoidal Steady-State Response of Circuits
Part Two: Electronics
7. Electron Control Devices
8. Semiconductor Types
9. Semiconductor Electronic Circuits
10. Special Topics and Applications
Part Three: Digital Systems
11. Binary Logic: Theory and Implementation
12. Simplifying Logical Functions

13. Components of Digital Systems
 14. Microprocessor Computer Systems
Part Four: Electromechanical Energy Conversion
 15. Magnetic Theory and Circuits
 16. Transformers
 17. Electromechanical Energy Conversion
 18. The Three-Phase Induction Motor
 19. Three-Phase Synchronous Machines
 20. D-C Machines
 21. Single-Phase Induction Motors
 22. Stepper Motors
Part Five: Feedback Control Systems
 23. Principles of Automatic Control
 24. Dynamic Behavior of Control Systems
- Appendices**

About the Author

Vincent Del Toro was an Emeritus Professor of City College of New York and an Electrical Engineer. His other books include Electric Machines and Power Systems, Principles of Control Systems Engineering and Electric Power Systems. He graduated from CCNY and Brooklyn Polytechnic University before turning to his enriching career in education and academics. He was a well-known educator and had garnered Educator of the Year awards for his contributions in the field. He wrote 10 books along with the best-selling books Electrical Engineering Fundamentals and Principles of Electrical Engineering. He died at the age of 82 on July 5, 2006 in New Jersey.

Electrical Engineering: Principles & Applications, 6/e

Allan R. Hambley

Pages: 921

Year: 2016



About the Book

The revised edition of Electrical Engineering enhances the overall learning experience by using a wide variety of pedagogical features to present the applications of the theories in various fields. Important topics such as Circuit Analysis, Digital Systems, Electronics, and Electromechanics are thoroughly covered. The focus of the text is to stimulate student interest and increase awareness about the relevance of electrical engineering in their chosen professions.

Features

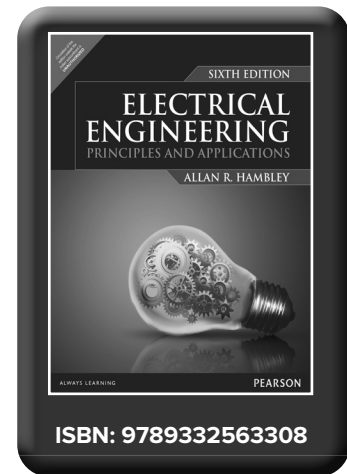
- Updated coverage of MATLAB and the Symbolic Toolbox for network analysis
- Explanation of how the Wheatstone bridge is used in strain measurements
- Discussion on Freescale Semiconductor HCS12/9S12 family as an example of microcontrollers
- Approximately 200 problems added, replacing some of the problems from the previous edition

Contents

1. Introduction
2. Resistive Circuits
3. Inductance and Capacitance
4. Transients
5. Steady-State Sinusoidal Analysis
6. Frequency Response, Bode Plots, and Resonance
7. Logic Circuits
8. Computers and Microcontrollers
9. Computer-Based Instrumentation Systems
10. Diodes
11. Amplifiers: Specifications and External Characteristics
12. Field-Effect Transistors
13. Bipolar Junction Transistors
14. Operational Amplifiers
15. Magnetic Circuits and Transformers
16. DC Machines
17. AC Machines

About the Author

Allan R. Hambley received his B.S. degree from Michigan Technological University, his M.S. degree from Illinois Institute of Technology, and his Ph.D. from Worcester Polytechnic Institute. He has worked in industry for Hazeltine Research Inc., Warwick Electronics, and Harris Government Systems. He is currently Professor of Electrical Engineering at Michigan Tech.



Basic Electrical Engineering

S. K. Sahdev

Pages: 656

Year: 2015



About the Book

Attuned to the needs of undergraduate students of engineering in their first year, Basic Electrical Engineering enables them to build a strong foundation in the subject. A large number of real-world examples illustrate the applications of complex theories. The book comprehensively covers all the areas taught in a one-semester course and serves as an ideal study material on the subject.

Features

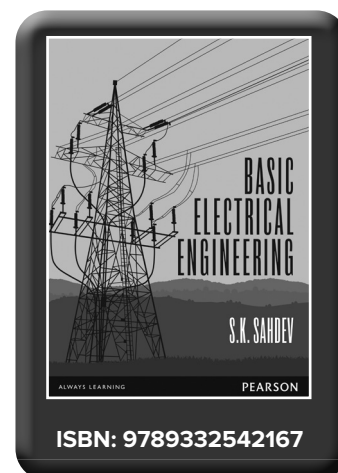
- Detailed coverage on AC Circuits and DC Circuits
- Separate chapters on Domestic Wiring and Illumination and Earthing and Electrical Safety
- Step-by-step problem-solving methodology to hone problem-solving skills
- Extended coverage on electric machines and measurements
- In-depth discussion on renewable sources of energy
- Coverage on specialized motors like hysteresis motor, stepper motor, linear induction motor and universal motor
- Excellent pedagogy
- 600+ Figures and Illustrations
- 500+ Solved Questions
- 450+ Unsolved Questions
- 200+ MCQs

Contents

1. Concepts of Circuit Theory
2. DC Circuit Analysis and Network Theorems
3. Electrostatics and Capacitors
4. Batteries
5. Magnetic Circuits
6. AC Fundamentals
7. Single-phase AC Circuits
8. Three-phase AC Circuits
9. Measuring Instruments
10. Single-phase Transformers
11. DC Machines (Generators and Motors)
12. Three-Phase Induction Motors
13. Single-Phase Induction Motors
14. Three-Phase Synchronous Machines
15. Sources of Electrical Power Online
16. Introduction to Power System Online
17. Introduction to Earthing and Electrical Safety . . . Online
18. Domestic Wiring & Illumination Online

About the Author

SK Sahdev is a Associate Dean in Lovely Professional University



Basic Electrical and Electronics Engineering, 2/e

S. K. Bhattacharya

Pages: 936

Year: 2017



About the Book

The second edition provides easy to comprehend learning material on the principles of basic electrical and electronics engineering. It offers an unparalleled exposure to the entire gamut of topics such as Electricity Fundamentals, Network Theory, Electro-magnetism, Electrical Machines, Transformers, Measuring Instruments, Power Systems, Semiconductor Devices, Digital Electronics and Integrated Circuits. Extensive use of illustrations, examples and exercises in accordance with the progressive development of the concepts covered within the chapter make the reading more exciting.

The text extensively includes number of illustrations, examples and exercises in accordance with the progressive development of the concept covered within the chapter to make the reading more exciting.

Features

- Extensively covers syllabus prescribed by all major technical universities
- Discussion on important topics such as electric safety and protection, digital instruments, common-emitter, common-base transistor configuration and characteristics.
- End- Chapter terminologies - List of important formulas, equations and points to remember.
- Step by Step tutorial Based approach
- Enhanced pedagogy
 - ◆ 600+ review questions
 - ◆ 250+ solved examples
 - ◆ 330+ multiple-choice questions
 - ◆ 740+ illustrations

Contents

- | | |
|--|---|
| 1. Basic Concepts, Laws, and Principles | 10. Synchronous Machines |
| 2. DC Networks and Network Theorems | 11. Measurement and Measuring Instruments |
| 3. AC Fundamentals and Single-phase Circuits | 12. Transducers |
| 4. Three-phase System | 13. Power Systems |
| 5. Electromagnetism and Magnetic Circuits | 14. Semiconductor Devices |
| 6. Transformers | 15. Rectifiers and Other Diode Circuits |
| 7. DC Machines | 16. Digital Electronics |
| 8. Three-phase Induction Motors | 17. Integrated Circuits |
| 9. Single-phase Motors | 18. Communication Systems |

About the Author

S. K. Bhattacharya is presently working as the Professor and Advisor in Sri Sukhmani Institute of Engineering & Technology, Dera Bassi, near Chandigarh, Punjab. Earlier, he worked as the Director, National Institute of Technical Teachers Training and Research (NITTTR) Chandigarh, Punjab; Director, NITTTR Kolkata, West Bengal; Director, Hindustan Institute of Technology, Greater Noida, Uttar Pradesh; Director SUS college of Engineering & Technology, Mohali, Punjab; Principal, SUS Women Engineering College, Mohali, Punjab; and Professor Emeritus, Sharda University, Greater Noida, Uttar Pradesh."



Circuit Theory Analysis and Synthesis

S. Salivahanan

Pages: 1328

Year: 2021



About the Book

Circuit Theory – Analysis and Synthesis is a lucidly written text which introduces the concepts of circuit theory. It is supported by strong pedagogy and content ideally designed for the students of the related field. The topics covered include basics of circuit theory, Graph Theory, Network Reduction and Theorems, Resonant Circuits, Coupled Circuits, Signal Analysis, Transient Circuit Analysis, Three-Phase Systems, Two Port Networks, Transfer Function Synthesis, Passive Filters, Attenuators, Impedance Matching Networks, Equalizers, Network Functions, Passive Network Synthesis, Active Network Synthesis, Fourier Analysis and State Variable Analysis. This text is an excellent book for anyone involved with Circuit Theory and its applications. The primary objective of this book is to provide ample space for theory and practice in the field of network analysis and synthesis.

Features

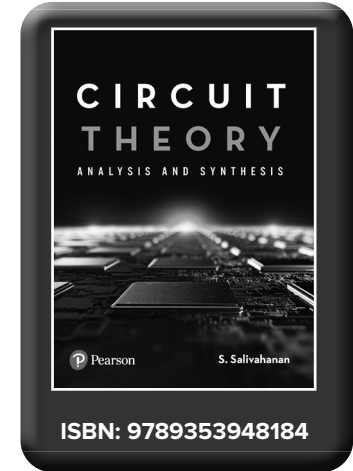
- Contents of the book are presented in a simple, precise, and systematic manner.
- Enable the students understand and apply the content in both efficient as well as effective ways.
- Numerous solved examples, self-explanatory sketches and many exercise problems with answers have been presented in each chapter to aid conceptual understanding of the subject.
- The mode of presentation is set to enhance the interest of the readers towards self-directed learning.

Contents

- | | |
|---|---|
| Foreword | 10. Two Port Networks |
| Preface | 11. Transfer Function Synthesis |
| About the Authors | 12. Passive Filters |
| 1. Basic Circuit Analysis | 13. Attenuators, Impedance Matching Networks and Equalizers |
| 2. Graph Theory | 14. Network Functions |
| 3. Network Reduction and Theorems | 15. Passive Network Synthesis |
| 4. Resonant Circuits | 16. Active Network Synthesis |
| 5. Coupled Circuits | 17. Fourier Analysis |
| 6. Introduction to Signal Analysis | 18. State Variable Analysis |
| 7. Transient Circuit Analysis Using Classical Method | Index |
| 8. Transient Circuit Analysis with Laplace Transforms | |
| 9. Three-Phase Systems | |

About the Author

Prof. S. Salivahanan is the Vice Chancellor of Vel Tech Deemed to be University. Prior to this he was the Principal of SSN College of Engineering, Chennai for 17 years. He has more than 43 years of teaching, research, administration, and industrial experience both in India and abroad. He authored 65 popular engineering textbooks published by Internationally renowned publishers. He has published 116 papers in International Journals and Conferences.



Electric Circuits, 11/e

James W. Nilsson | Susan A. Riedel

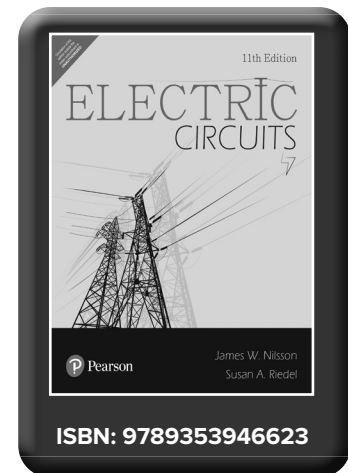
Pages: 820

Year: 2020



About the Book

Electric Circuits, 11th Edition continues to motivate students to build new ideas based on concepts previously presented, to develop problem-solving skills that rely on a solid conceptual foundation, and to introduce realistic engineering experiences that challenge students to develop the insights of a practicing engineer. The 11th Edition represents the most extensive revision with improved clarity, readability, and pedagogy-without sacrificing the breadth and depth of coverage that Electric Circuits is known for. Dr. Susan Riedel draws on her classroom experience to introduce the Analysis Methods feature, which gives students a step-by-step problem-solving approach.



Features

- ◆ Practical Perspectives introduce chapters and provide real-world circuit examples.
- ◆ Expanded– Assessment Problems prompt students at key points in the chapter, asking them to stop and assess their mastery of a particular objective by solving one or more assessment problems.
- ◆ Expanded – Examples in every chapter illustrate the application of a particular concept and often employ an Analysis Method, and exemplify good problem-solving skills.
- ◆ Updated– Fundamental Equations and Concepts are set apart from the main text to help readers focus on the key principles and help navigate through the important topics.
- ◆ Integration of Computer Tools assists students in the learning process by providing a visual representation of a circuit's behavior, validating a calculated solution, reducing the computational burden of more complex circuits, and iterating toward a desired solution using parameter variation.
- ◆ Chapter problems suited for exploration with PSpice and Multisim are marked accordingly

Contents

1. Circuit Variables
2. Circuit Elements
3. Simple Resistive Circuits
4. Techniques of Circuit Analysis
5. The Operational Amplifier
6. Inductance, Capacitance, and Mutual Inductance
7. Response of First-Order RL and RC Circuits
8. Natural and Step Responses of RLC Circuits
9. Sinusoidal Steady-State Analysis
10. Sinusoidal Steady-State Power Calculations
11. Balanced Three-Phase Circuits
12. Introduction to the Laplace Transform
13. The Laplace Transform in Circuit Analysis
14. Introduction to Frequency Selective Circuits
15. Active Filter Circuits
16. Fourier Series
17. The Fourier Transform
18. Two-Port Circuits

About the Author

Susan Riedel, (Emeritus) Iowa State University.

Network Analysis, Revised 3/e

M. E. Van Valkenburg | T.S. Rathore

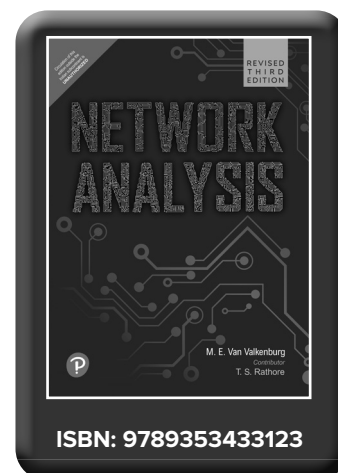
Pages: 724

Year: 2019



About the Book

After almost four decades of waiting, Pearson presents the revised third edition of its best-selling title on Network Analysis. This book has been revamped to have a perfect blend of engineering and mathematical approach. Throughout the book, the discussion starts with the analysis of simplest circuit and gradually moves on to more complicated circuits, i.e., R to RL, RC and RLC circuits, single node to multiple nodes circuits, from circuit with independent voltage and current sources to circuits which also include dependent sources. It comprehensively covers diverse range of topics in the eld of electric networks (or circuits) which is considered to be the foundation of electrical engineering such as the Nyquist criterion, Tellegan's theorem, the Gauss elimination method, Thevenin's and Norton's theorems, the Routh Hurwitz criterion, and Fourier transforms. Problems and suggested digital computer exercises are provided at the end of each chapter.



Features

- ENRICHED CONTENT
 - ◆ Includes new types of source transformations, namely, voltage to current, current to voltage, voltage to voltage and current to current.
 - ◆ One-step and one-circuit analysis is given for obtaining Thevenin/Norton equivalent circuits.
 - ◆ Discusses detailed analysis of three phase circuits.
- ENHANCED PEDAGOGY
 - ◆ 100+ new solved examples added throughout the book
 - ◆ 100+ unsolved chapter-end problems added
 - ◆ 100+ multiple choice questions included at the end of the book.

Contents

1. Development of the Circuit Concept
2. Conventions for Describing Circuits
3. Methods of Analysis
4. Response of First Order Circuits
5. Initial Conditions in Circuits
6. Response of Higher Order Circuits
7. Response of Circuits Through Laplace Transform
8. Response to Other Signals
9. Circuit Functions and Theorems
10. Circuit Functions; Poles and Zeros
11. Two-port Parameters
12. Sinusoidal Steady-state Analysis
13. Frequency Response Plots
14. Input Power, Power Transfer, and Insertion Loss
15. Fourier Series and Signal spectra
16. Fourier Integral and Continuous Spectra

About the Author

M. E. Van Valkenburg was a renowned electrical engineer in the United States, who had authored several textbooks in the respective field. Some of the books published by the author include Analog Filter Design, Introduction to Modern Network Synthesis, and Network Analysis: Solutions Manual. These books are extremely beneficial for students pursuing their degrees in the field of electrical engineering.

Networks, Lines and Fields, 2/e

John D. Ryder

Pages: 608

Year: 2015

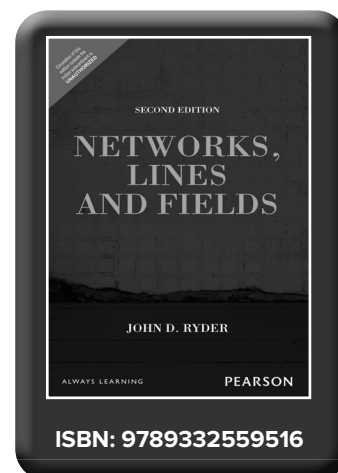
About the Book

The book gives an introduction to the field of communication circuit engineering and electrical network theory, from the standpoint of both currents and small fields. It provides a basic coverage of the theory of transmission of electric energy in lumped constant circuits, on distributed-constant lines, through wave-guides and into space. The book covers specific circuit material, which is essential to an understanding of modern electronic circuits and operations. It also attempts to tie together the circuit and field viewpoint through extensive use of transmissions line analogy.

The use of exponential and the reflection factor, rather than the hyperbolic form emphasize practical concepts of energy transfer in fields so that the student has before him the expressions for the incident and the reflected waves.

About the Author

John D. Ryder joined Iowa State College as Assistant Professor in Electrical Engineering. He rose to Professor in 1944. and in 1947 he assumed the Assistant Directorship of the Iowa Engineering Experiment Station. In September 1949, he was named Head of the Department of Electrical Engineering at the University of Illinois. He left this post in July 1954 to take up his present position as Dean of the College of Engineering at Michigan State University, East Lansing, Michigan.



Control Systems

Feedback Control of Dynamic Systems, 8/e

Gene F. Franklin / J. David Powell / Abbas Emami-Naeini

Pages: 928

Year: 2022



About the Book

Feedback Control of Dynamic Systems, 8th Edition, covers the material that every engineer needs to know about feedback control—including concepts like stability, tracking, and robustness. Each chapter presents the fundamentals along with comprehensive, worked-out examples, all within a real-world context and with historical background provided. The text is devoted to supporting students equally in their need to grasp both traditional and more modern topics of digital control, and the author's focus on design as a theme early on, rather than focusing on analysis first and incorporating design much later. The 8th Edition has been revised with up-to-date information, along with brand-new sections, problems, and examples.

Features

- A comprehensive and easy-to-understand introduction is devoted to supporting students equally in their need to grasp both traditional and more modern topics of digital control.
- New material has been added based on user feedback and the text has been updated throughout to include the improved features of MATLAB®.
- An entire chapter devoted to case studies covers real problems in a variety of fields and draws on all the design methods covered in the book.
- New examples, updates, and additions keep the material relevant and up-to-date.
- Over 60 of the problems in this edition are either new or revised from the previous edition.

Contents

1. An Overview and Brief History of Feedback Control
 2. Dynamic Models
 3. Dynamic Response
 4. A First Analysis of Feedback
 5. The Root-Locus Design Method
 6. The Frequency-Response Design Method
 7. State-Space Design
 8. Digital Control
 9. Nonlinear Systems
 10. Control System Design: Principles and Case Studies
- Appendix A Laplace Transforms
Appendix B Solutions to the Review Questions
Appendix C Matlab Commands

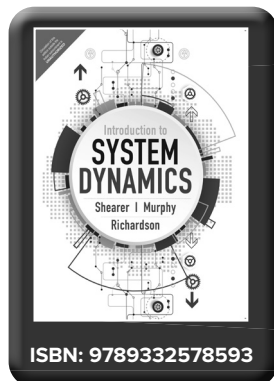
About the Authors

Gene F. Franklin, Stanford University

J. David Powell, Stanford University

Abbas Emami-Naeini, SC Solutions, Inc.

➔ ALSO AVAILABLE...



Introduction to Systems Dynamics, 1/e

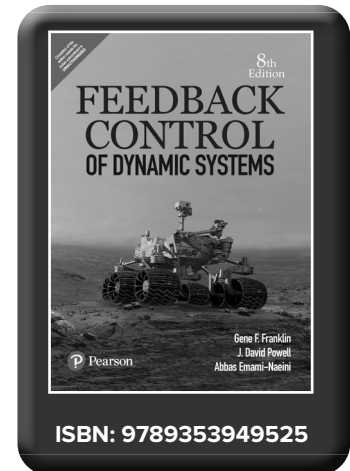
Shearer

Pages: 432

Year: 2016



ISBN: 9789332578593



ISBN: 9789353949525

Modern Control Engineering, 5/e

Katsuhiko Ogata

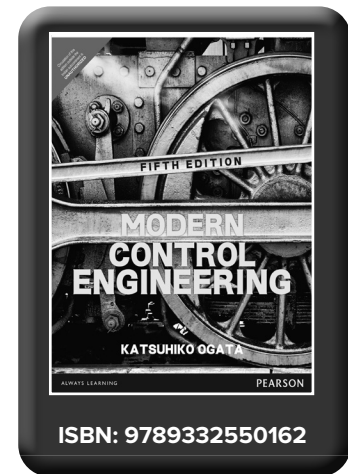
Pages: 550

Year: 2015



About the Book

Ogata's Modern Control Engineering, 5/e, offers the comprehensive coverage of continuous-time control systems that all senior students must have, including frequency response approach, root-locus approach, and state-space approach to analysis and design of control systems. The text provides a gradual development of control theory, shows how to solve all computational problems with MATLAB, and avoids highly mathematical arguments. A wealth of examples and worked problems are featured throughout the text. The new edition includes improved coverage of Root-Locus Analysis (Chapter 6) and Frequency-Response Analysis (Chapter 8). The author has also updated and revised many of the worked examples and end-of-chapter problems.



Features

- Chapter 8 first discusses PID control in general and then presents two-degrees-of-freedom control systems — Presents a computational (MATLAB) method to determine system parameters so the system will have the desired transient characteristics.
- An improved chapter on the design of control systems in state space (Chapter 10) — This chapter treats pole placement and observer design and includes quadratic optimal control. MATLAB is extensively used in the design problems using pole placement and observer design.
- An in-depth treatment of topics emphasizes both the basic concepts and the design aspects of control systems.
- An accessible presentation that avoids highly mathematical arguments. The author introduces mathematical proofs only when they contribute to an understanding of the material.
- Over 150 chapter-end worked problems and 180 unsolved problems clarify students' understanding of the material at strategic points throughout the text.
- An introduction to the two-degrees-of-freedom control system and introduction to robust control. Presents a MATLAB approach to the design of high performance control systems.
- A comprehensive coverage of root-locus analyses not found in other texts.
- Detailed coverage of frequency response of control systems.

Contents

1. Introduction to Control Systems
2. Mathematical Modeling of Control Systems
3. Mathematical Modeling of Mechanical Systems and Electrical Systems
4. Mathematical Modeling of Fluid Systems and Thermal Systems
5. Transient and Steady-State Response Analyses
6. Control Systems Analysis and design by the Root-Locus Method
7. Control Systems Analysis and Design by the Frequency Response Method
8. PID Controllers and Modified PID Controllers
9. Control Systems Analysis in State Space
10. Control Systems Design of in State Space

About the Author

Katsuhiko Ogata is a prolific writer and professor Emeritus at the Department of Mechanical Engineering of the University of Minnesota. Ogata did his B.S. and M.S. in mechanical engineering from the University of Tokyo and the University of Illinois respectively. In 1956, he did his Doctorate in Engineering Science from the University of California at Berkeley. His research areas are discrete-time control systems and optimal control of complex plants.

Discrete-Time Control Systems, 2/e

Katsuhiko Ogata

Pages: 760

Year: 2015

About the Book

Katsuhiko Ogata's **Discrete-Time Control Systems** presents a revised edition of the book that offers an ample treatment of discrete-time control systems. Designed for specific courses on the subject, for both undergraduate and postgraduate students, this book offers a gradual development of the subject. It emphasizes the fundamental concepts and avoids complex mathematical arguments. Ogata kept the text lucid and clear to make it easy-to-understand for the readers. It includes in-depth explanation of state observer design, quadratic optimal control, and pole placement. The book elucidates the treatment of the pole-placement design with minimum-order observer with the help of two main approaches. These are the state-space approach and the polynomial equations approach.

Features

- Includes detailed discussion of the theoretical background for designing control systems
- It highlights the importance of MATLAB for studying discrete-time control systems
- Use MATLAB optimally to get numerical solutions.
- Additional chapter on the polynomial equations approach to the control systems design.
- Offers numerous solved problems and instructive examples throughout.

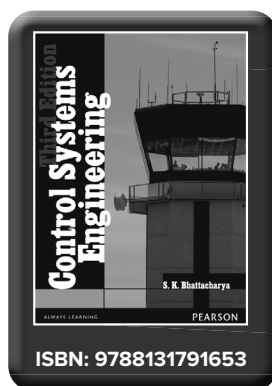
Contents

1. Introduction to Discrete-Time Control Systems.
 2. The z Transform.
 3. z-Plane Analysis of Discrete-Time Control Systems.
 4. Design of Discrete-Time Control Systems by Conventional Methods.
 5. State-Space Analysis.
 6. Pole Placement and Observer Design.
 7. Polynomial Equations Approach to Control Systems Design.
 8. Quadratic Optimal Control Systems.
- Appendixes**
- A. Vector-Matrix Analysis.
 - B. z Transform Theory.
 - C. Pole Placement Design with Vector Control.

About the Author

Katsuhiko Ogata is a prolific writer and professor Emeritus at the Department of Mechanical Engineering of the University of Minnesota. Ogata did his B.S. and M.S. in mechanical engineering from the University of Tokyo and the University of Illinois respectively. In 1956, he did his Doctorate in 1956 in Engineering Science from the University of California at Berkeley. His research areas are discrete-time control systems and optimal control of complex plants.

➡ ALSO AVAILABLE...

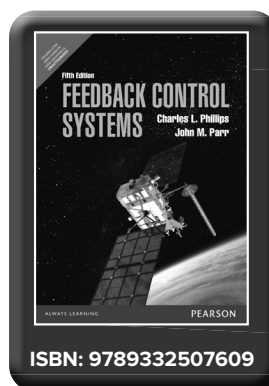


Control Systems Engineering, 3/e

S. K. Bhattacharya

Pages: 774

Year: 2013



Feedback Control Systems 5/e

Phillips and Parr

Pages: 784

Year: 2013

Electric Machines

Electrical Machines, Drives and Power Systems, Updated 6/e

Theodore Wildi

Pages: 1000

Year: 2023



About the Book

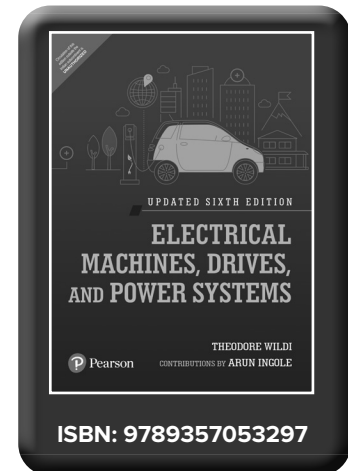
For courses in Motor Controls, Electric Machines, Power Electronics, and Electric Power. This best-selling text employs a theoretical, practical, multidisciplinary approach to provide introductory students with a broad understanding of modern electric power. The scope of the book reflects the rapid changes that have occurred in power technology—allowing the entrance of power electronics into every facet of industrial drives and expanding the field to open more career opportunities.

Features

- All equipment and systems are illustrated by diagrams and pictures, showing them in various stages of construction or in actual use.
- Exercises at the end of each chapter are divided into four levels: practical, intermediate, advanced, and industrial application. Furthermore, to encourage the reader to solve the problems, answers are given at the end of the book.
- New sections on the following topics have been included in this edition.
- Introduction to Switchgear
- The Concept of Current Interruption
- Low Voltage Switchgear

Contents

- | | |
|--|---|
| <p>Part I Fundamentals</p> <ol style="list-style-type: none">1. Units2. Fundamentals of Electricity, Magnetism, and Circuits3. Fundamentals of Mechanics and Heat <p>Part II Electrical Machines and Transformers</p> <ol style="list-style-type: none">4. Direct-Current Generators5. Direct-Current Motors6. Efficiency and Heating of Electrical Machines7. Active, Reactive, and Apparent Power8. Three-phase Circuits9. The Ideal Transformer10. Practical Transformers11. Special Transformers12. Three-phase Transformers13. Three-phase Induction Machines14. Selection and Application of Three-phase Induction Machines15. Equivalent Circuit of the Induction Motor16. Synchronous Generators17. Synchronous Motors18. Single-phase Motors19. Stepper Motors | <p>Part III Electrical and Electronic Drives</p> <ol style="list-style-type: none">20. Basics of Industrial Motor Control21. Fundamental Elements of Power Electronics22. Electronic Control of Directcurrent Motors23. Electronic Control of Alternating-current Motors <p>Part IV Electric Utility Power Systems</p> <ol style="list-style-type: none">24. Generation of Electrical Energy25. Transmission of Electrical Energy26. Distribution of Electrical Energy27. The Cost of Electricity28. Direct-current Transmission29. Transmission and Distribution Solid-state Controllers30. Harmonics31. Programmable Logic Controllers <p>References</p> <p>Appendixes</p> <p>Conversion Charts</p> <p>Properties of Insulating Materials</p> <p>Properties of Conductors and Insulators</p> <p>Properties of Round Copper Conductors</p> <p>Introduction to Switchgear</p> |
|--|---|



The Concept of Current
Interruption
Low Voltage Switchgear

Answers to Problems
Answers to Industrial Application Problems
Index

About the Author

Theodore Wildi, Professor Emeritus, Laval University

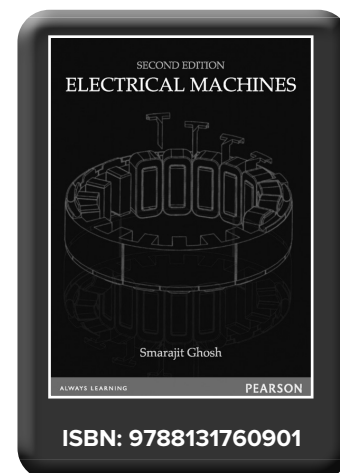
Contributions By Arun Ingole, Ex-General Manager, Siemens Ltd.

Electrical Machines, 2/e

Smarajit Ghosh

Pages: 848

Year: 2012



About the Book

This fully revised edition of the book is systematically organized as per the logical flow of the topics included in electrical machines courses in universities across India. It is written as a text-cum-guide so that the underlying principles can be readily understood, and is useful to both the novice as well as advanced readers. Emphasis has been laid on physical understanding and pedagogical aspects of the subject. In addition to conventional machines, the book's extensive coverage also includes rigorous treatment of transformers (current, potential and welding transformers), special machines, AC/DC servomotors, linear induction motors, permanent magnet DC motors and application of thyristors in rotating machines.

Features

- Exhaustive coverage on rotating machines including AC, DC and Special Machines
- Construction, Winding and Operation of various machines discussed in detail
- Excellent coverage on Transformers: Instrument & welding Transformers, 3 - winding Transformers, Single and 3 - phase transformers
- Rigorous discussion on Synchronous Generators and Motors in separate chapters
- New topic discussing latest developments in Motor Control using Solid State Devices
- A dedicated section, 'Significant Points' for revision and recapitulation of important concepts and points at the end of each chapter
- Multiple Choice Questions at the end of each chapter for quick revision of the concepts

Contents

1. Transformers
 2. Three- Phase Transformers
 3. Basic Concepts of Rotating Machines
 4. DC Generators
 5. DC Motors
 6. Synchronous Generators
 7. Synchronous Motors
 8. Polyphase Induction Motors
 9. Single phase Motors and Special Machines
- Appendix A:** Basic Definition, Hysteresis and Eddy

- Current Losses
- Appendix B:** Reluctance Motor
- Appendix C:** MMF of Distributed Winding
- Appendix D:** Torques in AC and DC Machine
- Appendix E:** Separation of No-load Losses of an Induction Motor
- Appendix F:** Separation of Losses of an Induction Motor
- Appendix G:** Tertiary Windings
- Appendix H:** Solid State Control of Drives

About the Author

Smarajit Ghosh is Professor, Department of Electrical and Instrumentation Engineering, Thapar University, Patiala, Punjab. He has contributed several research papers in international and national journals. His areas of research are Load Flow Study, Application of Fuzzy Logic, Artificial Neural Networks and Differential Evolution in Electric Power Distribution Systems. He is the recipient of Bharat Jyoti Award. He had also served BITS, Pilani and Sikkim Manipal University as an Assistant Professor and Professor respectively.

Special Electric Machines

V Rajini | V S Nagarajan

Pages: 340

Year: 2024



About the Book

In today's rapidly evolving technical landscape, special electric machines stand as pivotal components across diverse sectors. From powering household appliances to driving industrial machinery, from propelling naval vessels to fortifying defense systems, and from revolutionizing electric vehicles to advancing aircraft, these specialized machines are indispensable across myriad applications. As demands for efficiency soar, the future of these machines appears brighter than ever before. For budding electrical engineers, mastering the intricacies of these machines is paramount. This meticulously crafted textbook serves as a definitive resource, tailored for electrical engineering graduates eager to delve into the realm of special electric machines.

Features

- Detailed coverage of upcoming technologies, including special machines such as synchronous reluctance machines, magnet-based motors, and linear motors.
- Clear presentation of waveforms using simple, effective, and innovative techniques, along with step-by-step procedures and scaling for easier replication in exams and enhanced comprehension.
- Incorporates over 70 objective questions and 240 review questions to reinforce learning and aid in exam preparation.

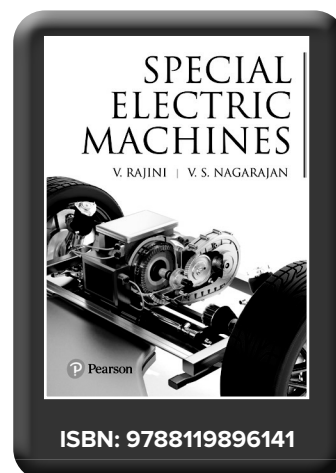
Contents

1. Introduction and Electronic Commutation with Rotor Position Sensing
2. Synchronous Reluctance Motor
3. Switched Reluctance Motor
4. Stepper Motor
5. Permanent Magnet Motors
6. Brushless DC Motor
7. Permanent Magnet Synchronous Motor
8. Axial Flux Motors
9. Linear Motors
10. Electric Drives for Traction, Electric Vehicle and Aeronautical Applications

About the Author

Dr. V. Rajini is Professor, HOD, Department of Electrical and Electronics Engineering, SSN College of Engineering, Chennai

V. S. Nagarajan Associate Professor, Department of Electrical and Electronics Engineering, SSN College of Engineering, Chennai



Electrical Machine Design

V Rajini | V S Nagarajan

Pages: 648

Year: 2018



About the Book

The text is conceived as a textbook for the undergraduate courses on Electrical machine design. It covers both traditional and modern concepts in the design of machines, including the design of special machines such as switched reluctance motor, permanent magnet synchronous machine, brushless DC machines and synchronous reluctance machines. It also includes a large number of solved examples and exercise problems in increasing order of difficulty.

Contents

1. Basic Design Considerations of Electrical Machines
2. Design of Magnetic circuits
3. Design of Transformer
4. Design of Three phase Induction Motor
5. Design of Single phase induction motor
6. Design of synchronous machine
7. Design of DC machine
8. Computer Aided Design and Analysis of Electric motors

Appendices

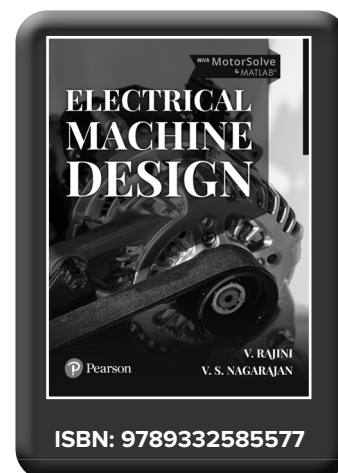
Features

- Over 200 MCQ's and 300 end of chapter exercises and review questions
- Flow chart based approach for problem solving in all chapters
- Detailed coverage of Design of special machines
- Illustrative Design Problems with MATLAB codes
- FE simulations to be provided with the text

About the Author

Dr. V. Rajini is Professor and HOD, Department of EEE, SSN College of Engineering, Chennai.

V.S. Nagarajan is Associate Professor, Department of EEE, SSN College of Engineering, Chennai



Electric Motor Drives: Modeling, Analysis, and Control

R. Krishnan

Pages: 656

Year: 2015



About the Book

The book develops a systematic approach to motor drives. While the emphasis is on practice extensive modeling, simulation and analysis is developed to assist readers in their understanding of the subject matter from fundamental principles. Also, each motor drive is illustrated with an industrial application in detail at the end of chapters to enable readers to relate theory to practice.

Features

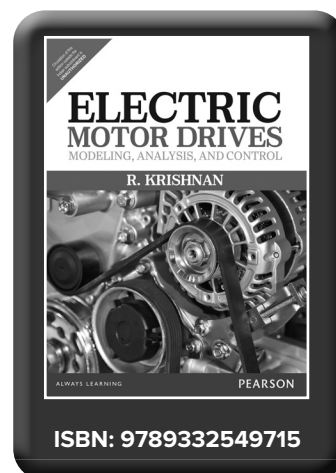
- Prior knowledge of electrical machines, power converters and linear control systems—Required for optimum text usage.
- System level analysis, design and integration of the motor drives addressed.
- Modeling and analysis of electrical machines and drive systems—Derived from first principles, while control algorithms are developed and their implementations with simulation results given whenever appropriate.
- Chapters include Discussion Questions and Exercise Problems, along with detailed introductions.

Contents

1. Introduction.
2. Modeling of DC Machines.
3. Phase Controlled DC Motor Drives.
4. Chopper Controlled DC Motor Drives.
5. Polyphase Induction Machines.
6. Phase Controlled Induction Motor Drives.
7. Frequency Controlled Induction Motor Drives.
8. Vector Controlled Induction Motor-Drives.
9. Permanent Magnet Synchronous and Brushless DC Motor Drives.

About the Author(s)

R. Krishnan, Virginia Tech



Electrical Engineering Materials

Electrical Engineering Materials

A J. Dekker

Pages: 224

Year: 2016



About the Book

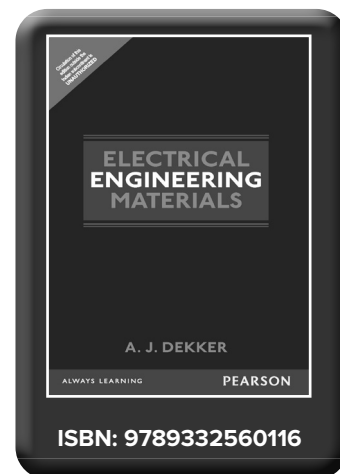
A list of general references is given at the beginning of this book, whereas references to specialized topics can be at the end of each chapter. A set of problems has been given at the end of each chapter. In a number of cases, these problems are intended to supplement the text.

Contents

1. Atoms and Aggregates of Atoms
2. Dielectric Properties of Insulators in Static Fields
3. Behavior of Dielectrics in Alternating Fields
4. Magnetic Properties of Materials
5. The Conductivity of Metals
6. The Mechanism of Conduction in Semiconductors
7. Junction Rectifiers and Transistors

About the Author

Adrianus J. Dekker, Professor, Department of Electrical Engineering, Institute of Technology, University of Minnesota



Non Conventional Energy Resources

Non Conventional Energy Resources

Shobh Nath Singh

Pages: 456

Year: 2015



About the Book

With energy sustainability at the forefront of public discussion worldwide, there is a vital requirement to foster an understanding of safe alternative sources of energy such as solar and wind power. Tailored to the requirements of undergraduate students of engineering, Non-conventional Energy Resources provides a comprehensive coverage of the basic principles, working and utilization of all key renewable power sources—solar, wind, hydel, biomass, hyower and fuel cells. The book also consists of several solved and unsolved questions for thorough practice and revision.

Features

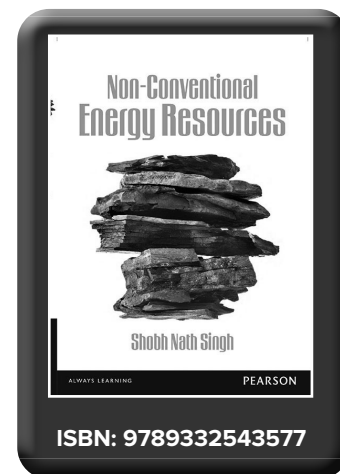
- Extensive coverage on:
 - ◆ Energy Management and Conservation
 - ◆ Fuel Cells
 - ◆ Solar and Thermal Cells
 - ◆ Exclusive chapter on Solid Wastes and Agricultural Refuse
- Provides the latest statistics from the energy sector in India
- Excellent Pedagogy:
 - ◆ More than 60 solved questions
 - ◆ More than 300 unsolved questions
 - ◆ More than 200 multiple-choice questions

Contents

1. NCER-An Overview
 2. Energy from the Sun
 3. Solar Thermal Energy Collectors
 4. Solar Cells
 5. Hydrogen Energy
 6. Wind Energy
 7. Geothermal Energy
 8. Solid Waste and Agricultural Refuse
 9. Biomass Energy
 10. Biogas Energy
 11. Tidal Energy
 12. Sea Wave Energy
 13. Ocean Thermal Energy Conversion
 14. Fuel Cell
 15. Magnetohydrodynamic(MHD) Power Generation
 16. Thermoelectric converters
 17. Thermionic converters
 18. Concept of Energy conservation and Energy Management
 19. Energy Conservation and Management in different Energy Activity Sector
- Appendix:** MCQs chapter-wise
Appendix: MCQs on Energy Systems
Appendix: Terms and Definition

About the Author

Shobh Nath Singh, Department of Electrical Engineering, Indian Institute of Technology (B.H.U.) Varanasi.



Non Linear Systems

Nonlinear Control

Hassan K. Khalil

Pages: 400

Year: 2019



About the Book

This book emerges from the award-winning book, *Nonlinear Systems*, but has a distinctly different mission and organization. While *Nonlinear Systems* was intended as a reference and a text on nonlinear system analysis and its application to control, this streamlined book is intended as a text for a first course on nonlinear control. In *Nonlinear Control*, author Hassan K. Khalil employs a writing style that is intended to make the book accessible to a wider audience without compromising the rigor of the presentation.

Features

Provide an Accessible Approach to Nonlinear Control

- A New Approach from an Award-winning Author
- Designed for the First Course on Nonlinear Control
- Accessible Writing that Resonates with Students
- Streamlined Material for a One-semester Course

Support Learning

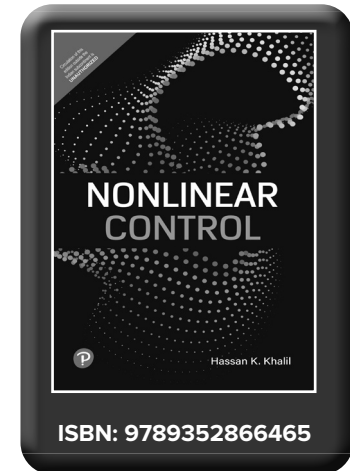
- End-of-chapter Exercises
- Instructor Solution Manual
- Companion Website

Contents

1. Introduction
2. Two-Dimensional Systems
3. Stability of Equilibrium Points
4. Time-Varying and Perturbed Systems
5. Passivity
6. Input-Output Stability
7. Stability of Feedback Systems
8. Special Nonlinear Forms
9. State Feedback Stabilization
10. Robust State Feedback Stabilization
11. Nonlinear Observers
12. Output Feedback Stabilization
13. Tracking and Regulation

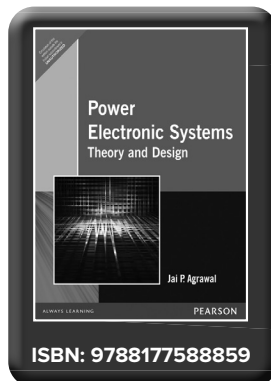
About the Author

Hassan K. Khalil, Michigan State University, East Lansing



Power Systems

➔ ALSO AVAILABLE...



Power Electronic Systems: Theory & Design

Jai P. Agrawal

Pages: 544

Year: 2006



Modern Power System Analysis with MATLAB® Applications

R Jegatheesan | K Vijayakumar

Pages: 544

Year: 2020



About the Book

Modern Power System Analysis with MATLAB® Applications aims to cater to the curriculum requirements of the undergraduate students and faculties of Electrical and Electronics Engineering for the course on Power System Analysis. Spread across ten chapters, the book aims to provide an in-depth understanding of the necessary theories. Special care has been taken to explain the development of mathematical models required for the power system analysis problems. Wherever required, MATLAB® programs and the corresponding solutions are presented to motivate the students to use the MATLAB® programs for small, medium and large size power system problems.

Features

- An entire chapter devoted to Smart Grid—the future technology in power system engineering.
- Includes over 80 example problems, solved using a stepwise approach.
- Comprises over 100 multiple-choice questions and 180 end-of-chapter review questions and exercises, to help readers in preparing for semester exams and enhance the understanding of the subject.
- Provides chapter summaries for quick revision.

Contents

Preface

About the Authors

1. Present Day Power System and Modelling of Power System Components
2. Per-unit System Representation
3. Bus Admittance and Bus Impedance Matrices
4. Power Flow Analysis
5. Symmetrical Fault Analysis

6. Unsymmetrical Fault Analysis

7. Transient Stability Analysis

8. Power System State Estimation and Optimal PMU Placement

9. Deregulation of Power Systems

10. Smart Grid

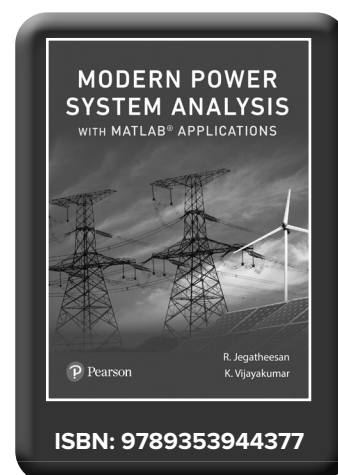
Appendix

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About the Author

Dr. R. Jegatheesan received B.E. (Hons.) degree in Electrical and Electrical Engineering from Madras University in the year 1963. Specialising in power system engineering, he obtained his M.Sc. (Engg.) degree from Madras University in the year 1969. He was awarded Ph.D. degree from Indian Institute of Technology, Kanpur, in the year 1975. He worked in Anna University, Chennai for more than three decades. He became Professor in 1985. During the period 1996–1999, he served as Registrar, Anna University. He worked as the Principal of Engineering colleges for 5 years. He was working as a Professor, in Malaysia for 5 years. Since January, 2010, Dr Jegatheesan has been working as a Professor in SRM Institute of Science and Technology, Chennai. His research interest includes analysis and optimisation problems on large scale power system, power system operation, power system state estimation and congestion management in deregulated power system. He has published 46 technical papers in international journals. Till now, six scholars have completed Ph.D. under his guidance. He has authored a book titled Analysis of Electric Circuits, published in the year 2015. Dr R. Jegatheesan has received 'ITEX 2008 Gold Medal'. He is the recipient of World Intellectual Property Organization's (WIPO) 'Best Invention Award'. He has also received gold medal in 'The Belgian and International Trade Fair' for 'Technological Innovation 2008'.

Dr. K. Vijayakumar received his B.E. and M.E. degrees from Annamalai University and obtained his Ph.D. at SRM Institute of Science and Technology. At present, he is working as a Professor and the Head of the Department of Electrical and Electronics Engineering of SRM Institute of Science and Technology. His research interests include power system modelling, power electronics converters for grid connected PV system, computational intelligence applications in power systems, FACTS and power quality. He has been awarded the 'Best Teacher Award' in the department for the academic years 2004–2005 and 2005–2006. He is a member of various professional bodies like IEEE, IET, FIE, ISTE and ISCA.



Modern Power Electronics and AC Drives

Bimal K. Bose

Pages: 744

Year: 2015



About the Book

A clear understanding of power electronics and AC drives is critical in a wide range of modern systems, from household appliances to automated factories. Modern Power Electronics and AC Drives covers every aspect of the topic, including crucial innovations such as artificial intelligence, advanced estimation and sensorless control. It is an advanced, authoritative, and practical guide for state-of-the-art power electronics and AC drive technology

Features

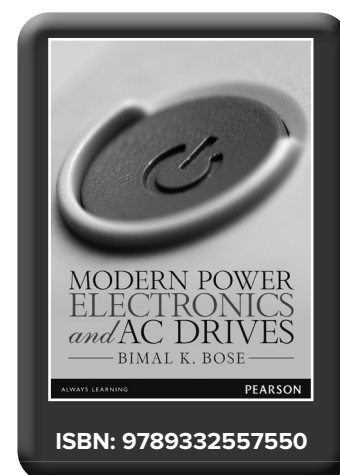
- Modern power semiconductor devices, converter circuits, and electrical machines
- High-performance control of induction and synchronous motor drives
- Energy saving control
- Estimation, identification and sensorless control of drives
- Artificial intelligence techniques such as expert system, fuzzy logic and neural network applied to power electronics and drives
- Use of MATLAB-based toolboxes in simulation and design

Contents

1. Power Semiconductor Devices
2. AC Machines for Drives
3. Diodes and Phase-Controlled Converters
4. Cycloconverters
5. Voltage-Fed Converters
6. Current-Fed Converters
7. Induction Motor Slip-Power Recovery Drives
8. Control and Estimation of Induction Motor Drives
9. Control and Estimation of Synchronous Motor Drives
10. Expert System Principles and Applications
11. Fuzzy Logic Principles and Applications
12. Neural Network Principles and Applications

About the Author

Bimal K. Bose is recognized worldwide as an authority and pioneer in the field of power electronics and drive technology. He has over 40 years of professional experience in R&D, design, and teaching. A seven-time IEEE Award winner, he holds 21 U.S. patents. He is currently at the University of Tennessee, where he holds the Condra Chair of Excellence in Power Electronics.



Power System Analysis

N. V. Ramana

Pages: 456

Year: 2010



About the Book

Power System Analysis is a comprehensive text designed for an undergraduate course in electrical engineering. Written in a simple and easy-to-understand manner, the book introduces the reader to power system network matrices and power system steady-state stability analysis.

Features

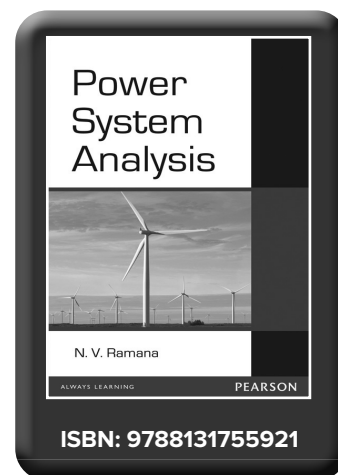
- In-depth coverage of Symmetrical fault analysis and unbalanced fault analysis
- Exclusive chapters on power flow studies
- A comprehensive chapter on transient stability
 - Precise explanation supported by suitable examples
 - The book is replete with objective questions and review questions

Contents

1. Introduction
2. Power System Network
3. Matrices-1
4. Power System Network
5. Matrices-2
6. Power Flow Studies-1
7. Power Flow Studies-2
8. Short Circuit Analysis 1 (Symmetrical Fault Analysis)
9. Short Circuit Analysis 2
(Unbalanced Fault Analysis)
10. Power System Steady-State stability Analysis
11. Transient Stability

About the Author

N.V. Ramana is Professor and Head, Department of Electrical and Electronics Engineering, JNTU College of Engineering, Jagityal, Karimnagar (D), Andhra Pradesh



Electric Power Transmission and Distribution

S. Sivanagaraju | S. Satyanarayana

Pages: 632

Year: 2008



About the Book

Electric Power Transmission and Distribution is a comprehensive text, designed for undergraduate courses in power systems and transmission and distribution. A part of the electrical engineering curriculum, this book is designed to meet the requirements of students taking elementary courses in electric power transmission and distribution. Written in a simple, easy-to-understand manner, this book introduces the reader to electrical, mechanical and economic aspects of the design and construction of electric power transmission and distribution systems.

Features

- A comprehensive chapter on voltage control
- In-depth coverage on transmission-line parameters, performance of short, medium and long transmission lines
- Exclusive chapters on substations and economical design of power- and distribution systems
- Precise explanations, supported by examples
- Photographs that enable students to visualize the components of transmission systems
- Solved problems using MATLAB
- 'Chapter at a Glance' at the end of every chapter to strengthen the learning process

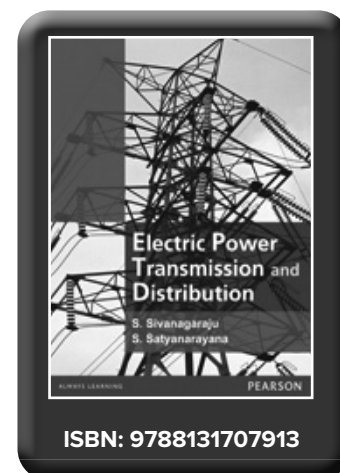
Contents

1. Introduction
2. Transmission Line Parameters
3. Performance of Short and Medium Transmission Lines
4. Performance of Long Transmission Lines
5. Power System Transients
6. Corona
7. Mechanical Design of Transmission Line
8. Overhead Line Insulators
9. Underground Cables
10. Power Factor Improvement
11. Voltage Control
12. Economical Design of Power System
13. Substations
14. Distribution Systems
15. EHV and HVDC Transmission Systems
16. Flexible AC Transmission Systems

About the Authors

S. Sivanagaraju is Professor, Department of Electrical Engineering, JNTU College of Engineering, Andhra Pradesh.

S. Satyanarayana is Professor and Head, Department of Electrical Engineering, St. Ann's College of Engineering, Andhra Pradesh



Generation and Utilization of Electrical Energy

S. Sivanagaraju | M. Balasubba Reddy | D. Srilatha

Pages: 588

Year: 2010



About the Book

Generation and Utilization of Electrical Energy is a comprehensive text designed for undergraduate courses in electrical engineering. The text introduces the reader to the generation of electrical energy and then goes on to explain how this energy can be effectively utilized for various applications like welding, electric traction, illumination, and electrolysis. The detailed explanations of practical applications make this an ideal reference book both inside and outside the classroom.

Features

- Elucidates the need for energy conservation methods, power factor improvement, various tariff methods, and power quality
- It also deals with the concept of distributed generation and deregulation
- Exclusive chapter on refrigeration and air-conditioning with applications supported by practical examples
- The book is replete with objective questions, short questions and answers, exercise problems, and review questions to fulfill the reader's requirements

Contents

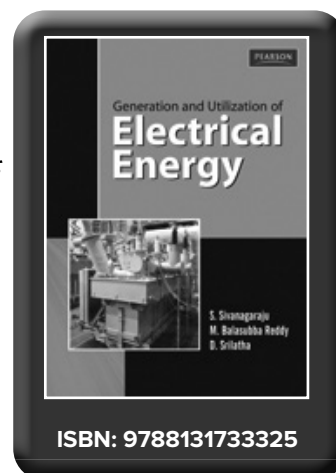
1. Conventional Power Generation
2. Non-Conventional Power Generation
3. Conservation
4. Electric Heating
5. Electric Welding
6. Fundamentals of Illumination
7. Various Illumination methods
8. Electric Drives
9. Electric Traction I
10. Electric Traction II
11. Electrolysis
12. Refrigeration and Air- conditioning

About the Authors

S. Sivanagaraju, Department of Electrical Engineering, University College of Engineering, JNTU, Andhra Pradesh.

M. Balasubba Reddy Head, Department of Electrical Engineering, Prakasam Engineering College, Kandukur, Andhra Pradesh.

D. Srilatha, Department of Electrical Engineering, Prakasam Engineering College, Andhra Pradesh.



Power System Operation and Control

S. Sivanagaraju | G. Sreenivasan

Pages: 612

Year: 2009



About the Book

Power System Operation and Control is a comprehensive text designed for undergraduate and postgraduate courses in electrical engineering. This book aims to meet the requirements of electrical engineering students of universities all over India. This text is written in a simple and easy-to-understand manner and is valuable both as a textbook as well as a reference book for engineering students and practicing engineers.

Features

- In-depth coverage of economical load dispatch problems and load frequency control of power systems
- Exclusive chapters on reactive-power compensation with modern control techniques
- A comprehensive chapter on voltage control
- In-depth coverage of modelling of LFC components
- Precise explanations supported by various examples
- A large number of examples such as multiple-choice questions, short questions and answers, review questions, and practice problems

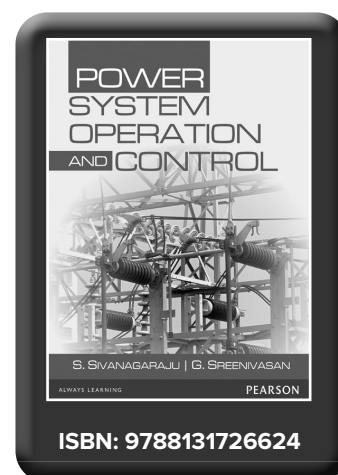
Contents

1. Economic Aspects
2. Economic Load Dispatch-I
3. Economic Load Dispatch-II
4. Optimal Unit Commitment
5. Optimal Power-Flow Problem—Solution Technique
6. Hydro-Thermal Scheduling
7. Load Frequency Control-I
8. Load Frequency Control-II
9. Reactive Power Compensation
10. Voltage Control
11. Modeling of Prime Movers and Generators
12. Modeling of Speed Governing and
13. Excitation Systems
14. Power System Security and State Estimation

About the Authors

S. Sivanagaraju, Department of Electrical and Electronics Engineering, University College of Engineering, JNTU Kakinada, Andhra Pradesh

G. Sreenivasan, Department of Electrical and Electronics Engineering, INTELL Engineering College, Andhra Pradesh



Power Transmission and Distribution

Arun Ingle

Pages: 824

Year: 2018



About the Book

The text is conceived as a textbook for the undergraduate course on Power transmission and distribution. The book includes theoretical explanation, accurate description & systematic presentation of each & every concept with emphasis on complete understanding of the subject matter by every reader. It also includes actual models of various renowned manufacturers for each product along with vivid illustrations, guidelines and best engineering practices followed in the industry. This will be of immense use to the students, teachers, consultants and industry professionals.

Features

- Step-by-step methodology provided for solved examples
- Over 250 illustrations and photographs
- 150+ solved examples and 50+ case studies to be provided in the book

Contents

Section I Analysis of Power Systems

1. Electrical Power Systems & Their Faults
2. Representation of Power Systems
3. Symmetrical Faults
4. Symmetrical Components
5. Unsymmetrical Faults

Section II Transmission & Distribution Lines

6. Transmission & Distribution Lines Parameters
7. Basics of Power Lines
8. Design & Construction of Power Lines
9. Operation & Stability of AC Transmission Lines
10. HVDC Transmission Systems

Section III Transformers

11. Basic Concepts of Transformers
12. Design & Construction of Power Transformers
13. Power Transformer Connections
14. Power Transformer Testing
15. Control, Operation & Monitoring of Power Transformers

Section IV T&D Equipments & Materials (Except Switchgear)

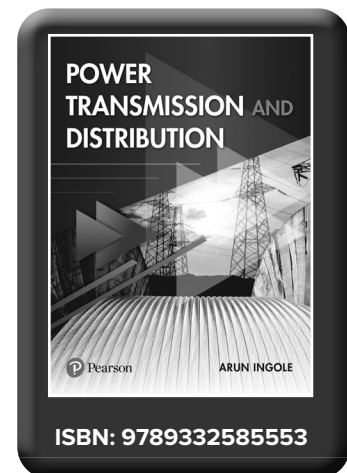
16. Power Capacitors
17. Power Reactors
18. Insulators, Fittings & Hardwares
19. Station Auxiliaries & Services
20. Cables, Accessories & Their Installation

Section V Substations

21. Busbar Systems & Connection Schemes
22. Distribution Substations
23. Transmission & Switching Substations
24. HVDC Substations
25. Large Electrical Installations
26. Steel Structures, Civil Works & Security
27. Earthing & Neutral Grounding

Section VIII Establishing & Operating T&D Systems

28. Design, Engineering, Planning & Implementation of T&D Systems
29. Insulation Co-ordination of T&D System
30. Installation & Commissioning of T&D Systems
31. Operation & Maintenance of T&D Systems
32. Interconnected Power Systems

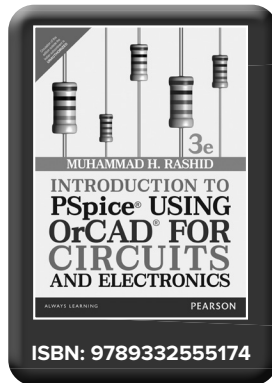


About the Author

Arun Ingle, Ex-General Manager, Siemens Ltd.

PSpice

➡ ALSO AVAILABLE...



**Introduction to PSpice Using
OrCAD for Circuits and
Electronics 3/e (with CD)**

M. H. Rashid

Pages: 480 Year: 2015

Switchgear and Protection

Switchgear and Protection

Arun Ingoles

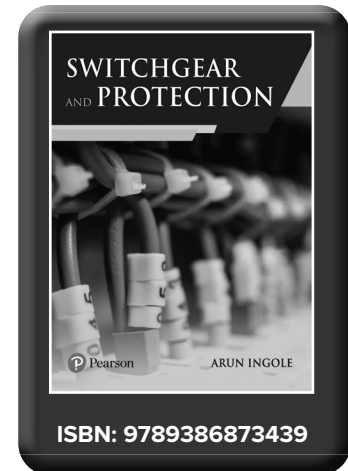
Pages: 584

Year: 2018



About the Book

Switchgear and Protection is designed for students of electrical engineering as well as professionals. With his rich industry experience, the author has strived to provide a balanced coverage of both the theoretical and practical aspects of Switchgear and Protection systems. The book covers a wide range of topics such as system faults; current interruption; working principles of various switchgears; theory of 'relay protection' as well as various protection schemes for electrical equipment and systems. Topics ranging from the humble LV fuse, circuit breakers, switchboards, control-boards, CTs, PTs, LAs to modern electrical technology such as SF6 filled switchgear (GIS) are also dealt in detail. The systematic presentation of topics supported by ample diagrams, layouts, sketches and photographs of real-life equipment utilized in industry make this text ideal for learners to comprehend the subject.



Features

- Step-by-step methodology provided for solved examples
- Over 250 illustrations and photographs
- 150+ solved examples and 50+ case studies to be provided in the book

Contents

Section I Analysis of Power Systems

1. Power Systems & Their Representation
2. Power System Faults & System Earthing
3. Introduction to Switchgear
4. The Concept of Current Interruption

Section II Low Voltage Switchgear

5. Low Voltage Switches & Fuses
6. Low Voltage Circuit Breakers
7. Low Voltage Contactors, Relays & Motor Protection
8. Low Voltage Enclosed Switchgear & Switchboards
9. Control & Monitoring Boards

Section III Medium & High Voltage Breakers

10. MV & HV Switches, Isolators & Earthing Switches
11. MV & HV Oil Circuit Breakers
12. MV & HV Air Blast Circuit Breakers
13. MV & HV SF6 Gas Circuit Breakers
14. MV & HV Vacuum Circuit Breakers
15. Operating Mechanisms of Circuit Breakers

16. Selection of Circuit Breakers

Section IV Other Switchgear Components & Systems

17. MV Air Insulated Enclosed Switchgear
 18. MV & HV SF6 Gas filled Switchgear
 19. Instrument Transformers
 20. Lightning Arresters & Surge Limiters
 21. Testing of Switchgear Equipments
- #### Section V Protection Equipment & Systems
22. Principles of Protection
 23. Basics of Protective Relays
 24. Practical Protection Relays
 25. Protection of Transmission Lines & feeders
 26. Distance Protection for Transmission Lines
 27. Protection of Generators & Motors
 28. Protection of Non-rotating Equipments
 29. Over Voltage & Surge Protection

About the Author

Arun Ingoles, Ex-General Manager, Siemens Ltd.

Electric and Hybrid Electric Vehicles

Electric and Hybrid Electric Vehicles

James D. Halderman | Curt Ward

Pages: 336

Year: 2023

About the Book

Electric and Hybrid Electric Vehicles meets the needs of the course in electrical systems and hybrid and electric vehicles. It is also designed as a standalone text for a special topic or certificate course in electric and hybrid electric vehicles or for an intro course in connected and autonomous vehicles. The text covers the advanced technology of onboard diagnosis as well as up-to-date electrified vehicles technology. Students gain the skills and knowledge needed to understand and service electric and hybrid electric vehicles.

Features

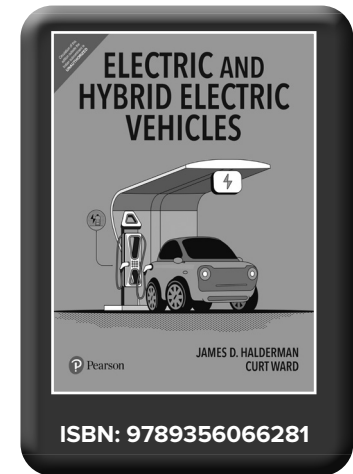
- Concise, easy-to-read chapters present content in manageable sections, making it more digestible and easily understood by students.
- Learning outcomes and objectives are aligned with ASE standards and chapter content.
- Case studies in technical chapters cover the three C's (complaint, cause and correction) of handling real-world customer issues.
- Students learn each system: Its purpose and function, parts and operations, and diagnosis and service criteria.
- Step-by-step photo sequences detail best-practice approaches for procedures such as diagnosing and troubleshooting faults.
- A chapter-ending summary, review questions, key term flashcards and chapter quiz provide ample practice.

Contents

- | | |
|--|--|
| 1. Hybrid and Electric Vehicle Safety | 11. EV and HEV Motors, Converters, and Inverters |
| 2. Introduction to Electric and Hybrid Electric Vehicles | 12. EV and PHEV Charging |
| 3. Health and Environmental Concerns | 13. Electric Vehicle Charging Equipment |
| 4. Hybrid Engine Systems | 14. Regenerative Brakes |
| 5. Hybrid and Electric Vehicle Preventative Maintenance | 15. Electric Power Steering |
| 6. Digital Storage Oscilloscope Testing | 16. EV and HEV HVAC |
| 7. Energy and Power | 17. EV and HEV Transmissions |
| 8. Advanced Electricity and Electronics | 18. EV and HEV ADAS |
| 9. Low Voltage Batteries and Stop-Start Systems | 19. Fuel Cells and Advanced Technologies |
| 10. High Voltage Batteries | 20. First Responder and Vehicle Dismantle Procedures |

About the Author

Jim Halderman brings a world of experience, knowledge and talent to his work. His automotive service experience includes working as a flat-rate technician, a business owner and a professor of automotive technology at a leading US community college for over 20 years. Curt Ward is an automotive professor at Joliet Junior College. Before his work at the college, Curt worked as a technical training instructor for the Chrysler Corporation for 15 years. Prior to his years at Chrysler, he worked as a technician, shop foreman and service manager in the retail sector of the automotive industry for 13 years.



Electronics & Communication Engineering

Antenna Theory

Antennas and Wave Propagation

G. S. N. Raju

Pages: 512

Year: 2006



About the Book

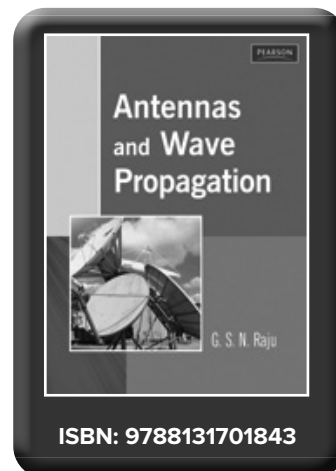
The book is written for the first course on Antennas and Wave Propagation. The book begins with an Introduction that discusses the fundamental concepts, notations, representation and principles that govern the field of antennas. A separate chapter on Mathematical Preliminaries is discussed followed by chapters on every aspect of antennas from Maxwell's equations to antenna array analysis, antenna array synthesis, antenna measurements and wave propagation.

Features

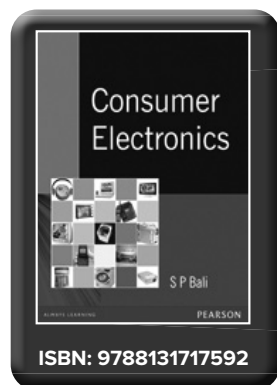
- Concepts, analysis, design and measurements — all four aspects given equal emphasis
- Balanced presentation of theory and applications
Unique Introduction that discuss the fundamental concepts, notations, representation and principles that govern the field of antennas
- Contains a chapter on Mathematical Preliminaries

Contents

- | | |
|--|-----------------------------|
| 1. Introduction | 7. HF, VHF and UHF Antennas |
| 2. Mathematical Preliminaries | 8. Microwave Antennas |
| 3. Maxwell's Equations and Electromagnetic waves | 9. Antenna Measurements |
| 4. Radiation and Antennas | 10. Wave Propagation |
| 5. Analysis of Linear Arrays | 11. MCQ |
| 6. Array Synthesis | |



➡ ALSO AVAILABLE...



Consumer Electronics

S. P. Bali

Pages: 752

Year: 2007



Basic Electronics

Electronics Fundamentals: Circuits, Devices & Applications, 9/e

Thomas L Floyd, David M. Buchla, Gary D. Snyder

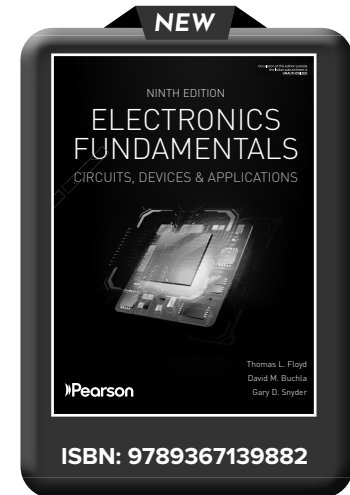
Pages: 1140

Year: 2025



About the Book

Electronics Fundamentals provides both practical and theoretical coverage of electrical, magnetic and electronics concepts. Practical circuits, examples and troubleshooting exercises help students develop useful analysis skills for resistive, reactive and device circuits. The 9th Edition preserves the legacy of the 8th Edition while updating its content. Fully revised simulation circuits and tutorials, a laboratory manual, PowerPoint slides® and an Instructor's Resource Manual supplement the text. A new tutorial also illustrates how to use TI-84 and HP Prime calculators to analyze circuits similar to those in the textbook.



Features

- Many examples are supported by graphing calculator methods outlined in the supplement Introduction to Scientific Calculators.
- An Application Assignment appears at the end of each chapter (except Ch. 1). It uses a step-by-step format and prompts students to perform tasks.
- A troubleshooting section is included in many chapters. Each emphasizes logical thought.
- Section Checkups consist of questions or exercises emphasizing key chapter concepts. Answers are given at the end of the chapter.
- Practice exercises with answers appear at the end of each chapter. This includes a true/false quiz, a self-test, troubleshooting exercises, and basic and advanced problem sets.

Contents

PART 1: DC CIRCUITS

1. Quantities and Units
2. Voltage, Current and Resistance
3. Ohm's Law, Energy, and Power
4. Series Circuits
5. Parallel Circuits
6. Series-Parallel Circuits
7. Magnetism and Electromagnetism

PART 2: AC CIRCUITS

8. Introduction to Alternating Current and Voltage
9. Capacitors
10. RC Circuits

11. Inductors
12. RL Circuits
13. RLC Circuits and Resonance
14. Transformers
15. Time Response of Reactive Circuits

PART 3: DEVICES

16. Diodes and Applications
17. Transistors and Applications
18. The Operational Amplifier
19. Basic Op-Amp Circuits
20. Special Purpose Op-Amp Circuits
21. Measurement, Conversion, and Control

About the Author(s)

The late **Thomas L. Floyd** had a master's degree in electrical engineering (SMU) and bachelor's degree in electrical engineering (UF).

David M. Buchla, BS, MA, is a graduate of Cal Poly, San Luis Obispo, and the University of San Francisco. He taught electronics technology at Yuba Community College for 18 years, where he developed laboratory experiments for all the electronics classes

Gary D. Snyder is a graduate of UCLA (BS, biology), Yuba Community College (AS, electronics technology) and CSU Sacramento (BS summa cum laude, computer engineering) and is a member of both Tau Beta Pi, the engineering honor society and Upsilon Pi Epsilon, the computer sciences honor society.

Basic Electronics

Debashis De

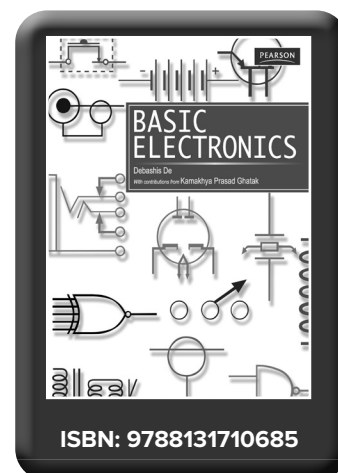
Pages: 628

Year: 2010



About the Book

Basic Electronics, meant for the core science and technology courses in engineering colleges and universities, has been designed with the key objective of enhancing the students' knowledge in the field of electronics. Solid state electronics being a rapidly-evolving field of study, each topic has been extensively researched for the latest updates, and the authors have supplemented the chapters with customized pedagogical features. The required knowledge in mathematics has been developed throughout the book and no prior grasp of physical electronics has been assumed as an essential requirement for understanding the subject. Detailed mathematical derivations illustrated by solved examples enhance the understanding of the theoretical concepts. With its simple language and clear-cut style of presentation, this book presents an intelligent understanding of a complex subject like electronics.



Features

- Outline and Objectives provide a brief look at the chapter, and help the students and the instructors prepare for class.
- Figures and Tables illustrate the major concepts providing a perspective into the real-life applications.
- Solved Examples after every key topic and mathematical derivation help the students develop a strong foundation in analysis.
- For Advanced Readers identify and analyse the vital concepts to support advanced learning.
- Points to Remember recreate the chapter for fast recapitulation.
- Objective Questions, Review Questions and Practice Problems allow the students to evaluate themselves on a chapter-by-chapter basis.

Contents

1. Semiconductor Fundamentals
2. Diode Fundamentals
3. Diode Circuits
4. BJT Fundamentals
5. BJT Circuits
6. Field-Effect Transistor
7. FET Circuits
8. Special Semiconductor Devices
9. Feedback Amplifier
10. Fundamentals of Integrated Circuit Fabrication
11. Operational Amplifier
12. Oscillators
13. Digital Electronic Principles
14. Electronic Instruments

Communication Systems-Digital & Analog Communications

Fundamentals of Communication Systems

John G. Proakis | Masoud Salehi

Pages: 876

Year: 2006



About the Book

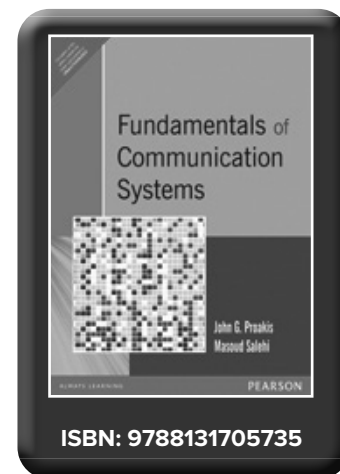
This text introduces the basic techniques used in modern communication systems and provides fundamental tools and methodologies used in the analysis and design of these systems. The authors emphasize digital communication systems, including new generations of wireless communication systems, satellite communications, and data transmission networks. A background in calculus, linear algebra, basic electronic circuits, linear system theory, and probability and random variables is assumed.

Features

- Emphasis on digital communications—Prepares students for state-of-the-art communication systems.
- Computer problems in each chapter that require MATLAB to solve—Gives students experience in simulating communication systems and comparing results with theory.
- A large number of problems in varying levels of difficulty—At the end of each chapter.
- Two separate chapters on Information Theory and Coding—Provides sufficient emphasis on these key topics.

Contents

1. Introduction
2. Signals and Linear Systems
3. Amplitude Modulation
4. Angle Modulation
5. Probability and Random Processes
6. Effect of Noise on Analog Communications
7. Analog to Digital Conversion
8. Digital Modulation in AWGN Baseband Channels
9. Transmission through Bandlimited AWGN Channels
10. Transmission of Digital Information via Carrier Modulation
11. Selected Topics in Digital Communications
12. An Introduction to Information Theory
13. Coding for Reliable Communications



Electronic Communications, 4/e

Dennis Roddy | John Coolen

Pages: 736

Year: 2008



About the Book

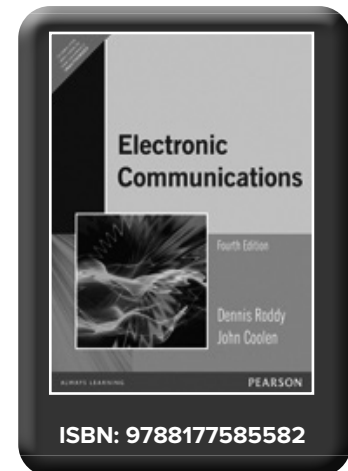
This comprehensive introduction to Electronic Communications explores fundamental concepts and their state-of-the-art application in radio, telephone, facsimile transmission, television, satellite, and fiber optic communications. It provides an explanatory as well as descriptive approach, avoids lengthy mathematical derivations, and introduces the use of Mathcad for problem-solving in select areas.

Features

- Comprehensive coverage that allows instructors a range of material from which to choose
- Avoids lengthy mathematical derivations, but gives important mathematical results and their physical interpretation
- Makes use of Mathcad for problem-solving in select areas to alleviate tedious mathematical manipulation of formulas
- Features new chapters on digital signals and digital communications.

Contents

1. Passive Circuits
2. Waveform Spectra
3. Digital Line Waveforms
4. Noise
5. Tuned Small Signal Amplifiers, Mixers and Active Filters
6. Oscillators
7. Receivers
8. Amplitude Modulation
9. Single-Sideband Modulation
10. Angle Modulation
11. Pulse Modulation
12. Digital Communication
13. Transmission Lines and Cables
14. Wave guides
15. Radio wave Propagation
16. Antennas
17. Telephone Systems
18. Facsimile and Television
19. Satellite Communications
20. Fiber Optic Communications



Electronic Communications System : Fundamentals Through Advanced, 5/e

Wayne Tomasi

Pages: 1184

Year: 2008



About the Book

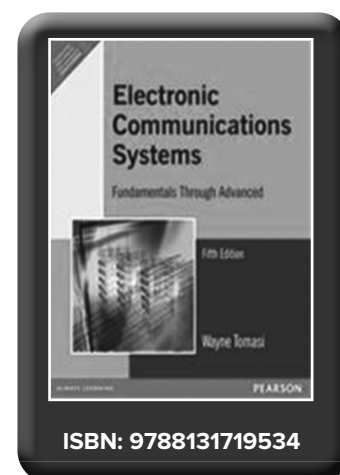
Comprehensive in scope and contemporary in coverage, this text introduces basic electronic and data communications fundamentals, and explores their application in modern digital and data communications systems. Students with previous knowledge in basic electronic principles and fundamental calculus concepts will gain a complete understanding of the topics presented here. Tomasi's Advanced Electronic Communications Systems 6/e is the last 10 chapters of this text.

Features

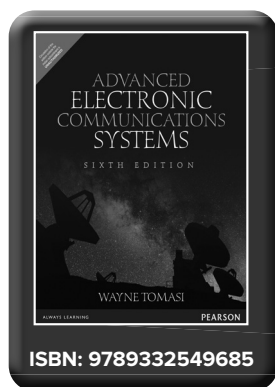
- **Rewritten material on satellites**—Includes their history; orbits; elevation categories; orbital patterns; and antenna look angles.
- **Materials in the Fundamentals chapters on AM envelopes**—Produced by complex nonsinusoidal signals, Quadrature Amplitude Modulation, noise limiters and blankers, alternate signal-to-noise measurements, single-sideband suppressed carrier, frequency division multiplexing, double-sideband suppressed carrier, quadrature multiplexing, microstrip, and stripline.
- **Material in the Advanced chapters**—On trellis encoding, CCITT modem recommendations, PCM line speed, extended superframe format, wavelength division multiplexing, Kepler's laws, Clark orbits, limits of visibility, Satellite Radio Navigation and Navstar GPS.
- **Optical fiber communications has been moved from Chapter 20 to Chapter 11**—Includes new sections on light sources, optical power, optical sources and link budget.

Contents

- | | |
|--|--|
| 1. Introduction to Electronic Communications | 14. Electromagnetic Wave Propagation |
| 2. Signal Analysis and Mixing | 15. Antennas and Waveguides |
| 3. Oscillators, Phase-Locked Loops, and Frequency Synthesizers | 16. Telephone Instruments and Signals |
| 4. Amplitude Modulation Transmission | 17. The Telephone Circuit |
| 5. Amplitude Modulation Reception | 18. The Public Telephone Network |
| 6. Single-Sideband Communications Systems | 19. Cellular Telephone Concepts |
| 7. Angle Modulation Transmission | 20. Cellular Telephone Systems |
| 8. Angle Modulation Reception and FM Stereo | 21. Introduction to Data Communications and Networking |
| 9. Digital Modulation | 22. Fundamental Concepts of Data Communications |
| 10. Digital Transmission | 23. Data-Link Protocols and Data Communications Networks |
| 11. Digital T-Carriers and Multiplexing | 24. Microwave Radio Communications and System Gain |
| 12. Metallic Cable Transmission Media | 25. Satellite Communications |
| 13. Optical Fiber Transmission Media | 26. Satellite Multiple Accessing Arrangements |



➡ ALSO AVAILABLE...



Advanced Electronic Communications System, 6/e

Wayne Tomasi

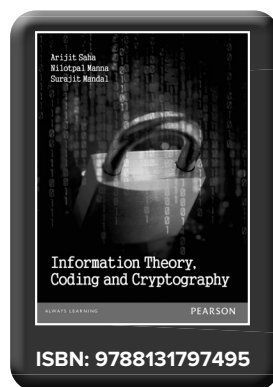
Pages: 624

Year: 2015



E-Book

ISBN: 9789332549685



Information Theory, Coding & Cryptography

Arijit Saha

Pages: 456

Year 2013

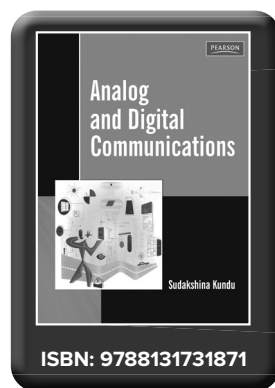


E-Book



POD

ISBN: 9788131797495



Analog and Digital Communications

Sudakshina Kundu

Pages: 384

Year: 2010



E-Book



POD

ISBN: 9788131731871

Digital Design

Logic & Computer Design Fundamentals, 5/e

M. Morris Mano, Charles R. Kime, Tom Martin

Pages: 627

Year: 2025



About the Book

Logic and Computer Design Fundamentals is a thoroughly up-to-date text that makes logic design, digital system design, and computer design available to students of all levels. The Fifth Edition brings this widely recognized source to modern standards by ensuring that all information is relevant and contemporary. The material focuses on industry trends and successfully bridges the gap between the much higher levels of abstraction students in the field must work with today than in the past.

Features

- Strong connections to real-world technology allow students to apply major concepts to source material.
- UPDATED! This fifth edition is highly up-to-date with all changing technology and trends in the logic and computer design industry, allowing a smooth transition to

the subject matter's much higher level of abstraction.

- REVISED! Well-structured chapter reorganization allows professors to flexibly tailor the degree of technology coverage to suit both electrical and computer engineering as well as computer science students.

Contents

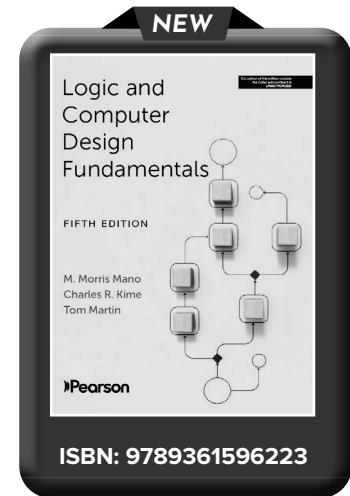
1. Digital Systems and Information
2. Combinational Logic Circuits
3. Combinational Logic Design
4. Sequential Circuits
5. Digital Hardware Implementation
6. Registers and Register Transfers
7. Memory Basics
8. Computer Design Basics
9. Instruction Set Architecture
10. RISC and CISC Processors
11. Input-Output and Communication
12. Memory Systems

About the Authors

M. Morris Mano California State University, Los Angeles

Charles R. Kime University of Wisconsin, Madison

Tom Martin Virginia Tech

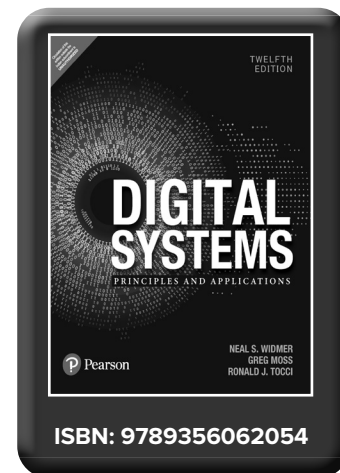


Digital Systems, 12/e

Ron Tocci | Neal Widmer | Greg Moss

Pages: 1028

Year: 2022



About the Book

Pearson presents revised edition of Digital Systems which thoroughly prepares students for the study of digital systems and computer and microcontroller hardware.

The text is comprehensive yet highly readable, clearly introducing the purpose and fundamentals of each topic before delving into more technical descriptions. It is also definition-focused, with new terms listed in each chapter and defined in a glossary. This Twelfth Edition has been thoroughly revised and updated with new material on section-level learning outcomes, Quadrature Shaft Encoders used to obtain absolute shaft positions, troubleshooting prototype circuits using systematic fault isolation techniques, Time Division Multiplexing, expanded discussion of VHDL data objects and more!

Features

- Clearly explains digital principles over the evolution of the telecommunications systems, from telegraphs and telephones through advanced digital cell phones.
- Emphasizes the use of megafunctions as the fundamental building blocks for new digital systems.
- Includes a full system project, showing all the steps of project management through the example of building a microwave oven controller from start to finish
- Includes expanded coverage of analog interfacing, including pipelined ADC and diverse systems applications.
- Includes extensive coverage of memory systems

Contents

1. Introductory Concepts
2. Number Systems and Codes
3. Describing Logic Circuits
4. Combinational Logic Circuits
5. Flip-Flops and Related Devices
6. Digital Arithmetic: Operations and Circuits
7. Counters and Registers
8. Integrated-Circuit Logic Families
9. MSI Logic Circuits
10. Digital System Projects Using HDL
11. Interfacing with the Analog World
12. Memory Devices
13. Programmable Logic Device Architectures

About the Authors

Ron Tocci is a retired Professor Emeritus of Electrical Engineering Technology from Monroe Community College in Rochester, New York, where he served on the faculty and as department chair for many years.

Neal Widmer has been teaching digital electronics for over 30 years. He holds a Bachelor's Degree in Electrical Engineering Technology and a Master's Degree in Industrial Engineering, both from Purdue University. Prior to teaching, his professional practice was in clinical engineering departments of two Midwest hospitals. Currently, he is a Full Professor and Associate Department Head in the School of Engineering Technology at Purdue University

Greg Moss is a retired Professor Emeritus of Electrical Engineering Technology from Purdue University, where he taught digital electronics for over thirty years.

Advanced Digital Design with the Verilog HDL, 2/e

Michael D. Ciletti

Pages: 992

Year: 2017



About the Book

For an advanced course in digital design for seniors and first-year graduate students in electrical engineering, computer engineering, and computer science. This book builds on the student's background from a first course in logic design and focuses on developing, verifying, and synthesizing designs of digital circuits. The Verilog language is introduced in an integrated, but live manner, only as needed to support design examples (includes appendices for additional language details). It addresses the design of several important circuits used in computer systems, digital signal processing, image processing, and other applications."

Features

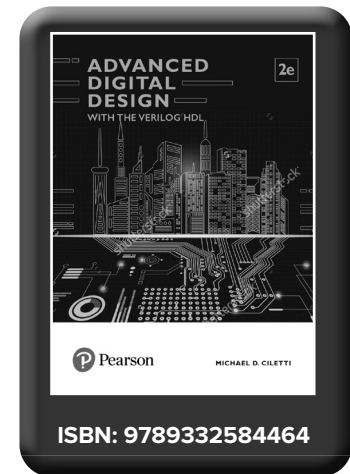
- Provides a brief review of basic principles in combinational and sequential logic
- Focuses on modern digital design methodology
- Demonstrates the utility of ASM and ASMD charts for behavioral modeling
- Clearly distinguishes between synthesizable and nonsynthesizable loops
- Provides several problems with a wide range of difficulty after each chapter
- Combines a solution manual with an on-line repository of additional worked exercises

Contents

1. Introduction to Digital Design Methodology
2. Review of Combinational Logic Design
3. Fundamentals of Sequential Logic Design
4. Introduction to Logic Design with Verilog
5. Logic Design with Behavioral Models of Combinational and Sequential Logic
6. Synthesis of Combinational and Sequential Logic
7. Design and Synthesis of Datapath Controllers
8. Programmable Logic and Storage Devices
9. Algorithms and Architectures for Digital Processors
10. Architectures for Arithmetic Processors
11. Postsynthesis Design Tasks

About the Author

Michael Ciletti is Professor Emeritus in the Department of Electrical and Computer Engineering at the University of Colorado, Colorado Springs. His areas of interest include Modeling, synthesis and verification of digital systems with hardware description languages, system-level design languages, and embedded systems with FPGAs.



Digital Circuits & Design

D.P Kothari | J.S Dhillon

Pages: 656

Year: 2015



About the Book

This student friendly, practical and example-driven book gives students a solid foundation in the basics of digital circuits and design. The fundamental concepts of digital electronics such as analog/digital signals and waveforms, digital information and digital integrated circuits are discussed in detail using relevant pedagogy

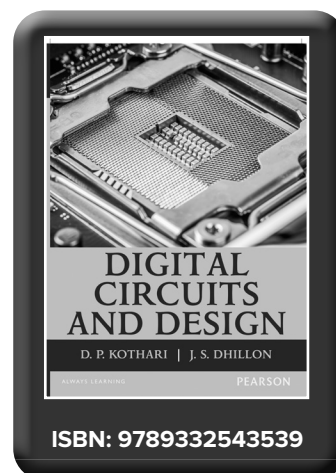
Features

- Extensive coverage on:
 - ◆ Counters such as Hybrid, Decade and Presetable
 - ◆ Edge Triggered Flip Flops
 - ◆ Hardware Description Languages
 - ◆ Design of Arithmetic Logic Unit
- Exclusive chapter on Logic Description Using VHDL
- Includes topics such as synchronous/asynchronous mode circuits, pulse mode, sequential circuits, VHDL 7 segment decoder, VHDL code converters, etc
- Additional solve the examples and reading material available online

About the Author

D P Kothari Director Research, GPGL, Nagpur Director-In-Charge, Indian Institute of Technology Delhi Former Vice Chancellor, VIT, Vellore and Former Principal, VNIT, Nagpur

J S Dhillon Professor, Department of Electrical and Instrumentation Engineering Sant Longowal Institute of Engineering and Technology, Punjab.



Digital Design: With an Introduction to the Verilog HDL, VHDL, and SystemVerilog, 6/e

M. Morris Mano | Michael D Cileti

Pages: 768

Year: 2018



About the Book

Digital Design, Sixth edition is a modern update of the classic authoritative text on digital design. This book teaches the basic concepts of digital design in a clear, accessible manner. The book presents the basic tools for the design of digital circuits and provides procedures suitable for a variety of digital applications.

Features

- Closely reflects the content of a foundation course in digital design, and the mainstream technology of today's digital systems—CMOS circuits
- Presents a clear development of a design methodology using the Verilog HDL
- Contains a smart sequence of topics to cater to different courses that adhere to traditional, manual-based, treatments of digital design; courses that treat design using an HDL; and courses that are in transition between or blend the two approaches.

New To This Edition

- Addition of Web Search Topics at the end of each chapter to point students to additional subject matter available on the Web
- Revision of approximately one-third of the problems at the end of the chapters
- Streamlining of the discussion of Karnaugh-maps
- Inclusion of an appendix introducing semiconductor technology

Contents

1. Digital Systems and Binary Numbers
2. Boolean Algebra and Logic Gates
3. Gate-Level Minimization
4. Combinational Logic
5. Synchronous Sequential Logic
6. Registers and Counters
7. Memory and Programmable Logic
8. Design at the Register Transfer Level
9. Asynchronous Sequential Logic
10. Digital Integrated Circuits
11. Laboratory Experiments with Standard ICs and FPGAs
12. Standard Graphic Symbols

About the Authors

M. Morris Mano, California State University, Los Angeles

Micheal D. Ciletti, University of Colorado, Colorado Springs



Digital Logic and Computer Design

M. Morris Mano

Pages: 560

Year: 2016



About the Book

This book presents the basic concepts used in the design and analysis of digital systems and introduces the principles of digital computer organization and design. It discusses various methods and techniques suitable for a variety of digital system design applications and covers all aspects of digital systems. It also includes applications of Read Only Memory (ROM) and Programmable Logic Array (PLA). The flexible organization of the book permits it to be used in a variety of ways to suit the needs of courses in digital systems taught in electrical, electronics, computer science and engineering departments.

Features

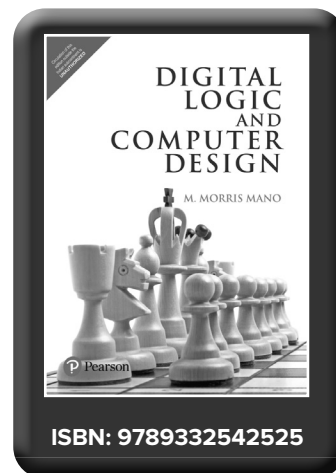
- Covers all aspects of digital systems from electronic gate circuits to the complex structure of microprocessor systems
- Facilitates a thorough understanding of the register-transfer method used for the analysis and design of processor units and control units

Contents

1. Binary Systems
2. Boolean Algebra and Logic Gates
3. Simplification of Boolean Functions
4. Combinational Logic
5. Combinational Logic with MSI and LSI
6. Sequential Logic
7. Registers, Counters, and the Memory Unit
8. Register-Transfer Logic
9. Processor Logic Design
10. Control Logic Design
11. Computer Design
12. Microcomputer System Design
13. Digital Integrated Circuits

About the Authors

M. Morris Mano, California State University, Los Angeles

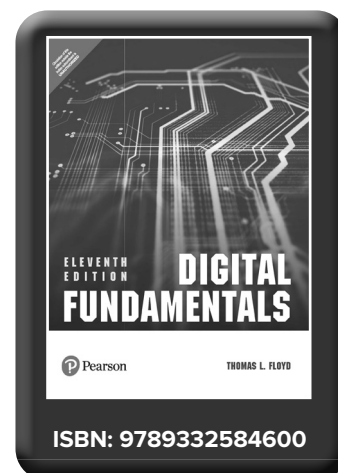


Digital Fundamentals, 11/e

Thomas L Floyd

Pages: 672

Year: 2017



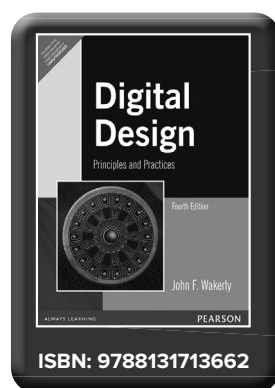
About the Book

Digital Fundamentals, Eleventh Edition, continues its long and respected tradition of offering students a strong foundation in the core fundamentals of digital technology, providing basic concepts reinforced by plentiful illustrations, examples, exercises, and applications. The text's teaching and learning resources include an Instructor's Manual, PowerPoint lecture slides, and Test Bank, as well as study resources for students.

Features

- A new boxed feature, Implementation, shows how various logic functions can be implemented using fixed-function devices or by writing a VHDL program for PLD implementation.
- A new chapter on data transmission has been added and includes extensive coverage of standard busses.
- A new page layout and design provides better visual appearance and ease of use.

➡ ALSO AVAILABLE...

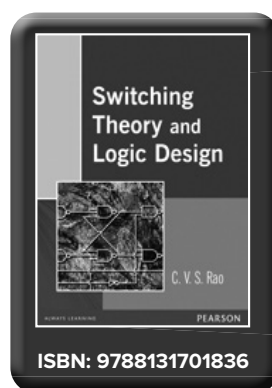


**Digital Design:
Principles and
Practices, 4/e**

Wakerly

Pages: 852

Year: 2008

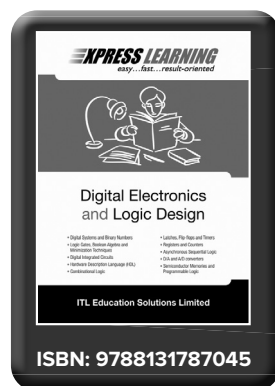


**Switching Theory and
Logic Design**

C. V. S. Rao

Pages: 336

Year: 2006

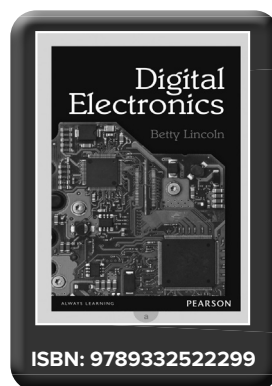


**Express Learning
Series - Digital
Electronics and
Logic Design**

ITL ESL

Pages: 36

Year: 2013



Digital Electronics

Betty Lincoln

Pages: 412

Year: 2014



Digital Integrated Circuits: A Design Perspective, 2/e

Jan M. Rabaey | Anantha Chandrakasan | Borivoje Nikolic

Pages: 784

Year: 2016

About the Book

Progressive in content and form, this text successfully bridges the gap between the circuit perspective and system perspective of digital integrated circuit design. Beginning with solid discussions on the operation of electronic devices and in-depth analysis of the nucleus of digital design, the text maintains a consistent, logical flow of subject matter throughout. The revision addresses today's most significant and compelling industry topics, including: the impact of interconnect, design for low power, issues in timing and clocking, design methodologies, and the tremendous effect of design automation on the digital design perspective. The revision reflects the ongoing evolution in digital integrated circuit design, especially with respect to the impact of moving into the deep-ubmicron realm.

Features

- NEW - Updating of technology of the deep-submicron realm—The piece makes sure that updates to most of the numeric values with respect to advancing processes can be accomplished easily.
- Interconnect material takes a more predominant position and is moved forward in the presentation.
- A number of the circuit techniques have been removed or updated or newer approaches have been introduced—Reflects the changes in design approaches over the last decade.
- A chapter on manufacturing technology has been introduced—Design methodologies are introduced throughout the text in synchronicity with the circuit content.
- Design methodology inserts—Discuss design automation.

Contents

Part 1 The Fabrics

1. Introduction
2. The Manufacturing Process
3. The Devices
4. The Wire

Part 2 A Circuit Perspective

5. The CMOS Inverter
6. Designing Combinational Logic Gates in CMOS

7. Designing Sequential Logic Circuits

Part 3 A System Perspective

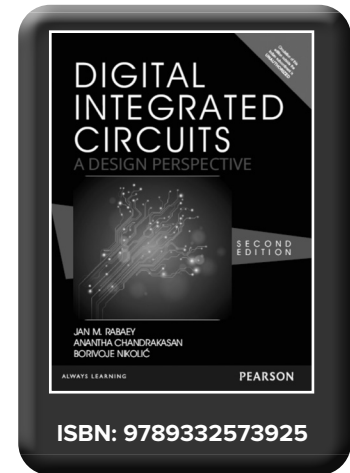
8. Implementation Strategies for Digital IC
9. Coping with Interconnect
10. Timing Issues in Digital Circuits
11. Designing Arithmetic Building Blocks
12. Designing Memory and Array Structures

About the Authors

Jan M. Rabaey, University of California, Berkeley

Anantha Chandrakasan, Massachusetts Institute of Technology, Cambridge

Borivoje Nikolic, University of California, Berkeley



Digital Image Processing

Digital Image Processing, 4/e

Rafael C. Gonzalez | Richard E. Woods

Pages: 1026

Year: 2018



About the Book

The fourth edition of Digital Image Processing, which celebrates the book's 40th anniversary, continues its cutting-edge focus on contemporary developments in all mainstream areas of image processing. It focuses on material that is fundamental and has a broad scope of application.

Features

- Coverage of graph cuts and their application to segmentation.
- A discussion of superpixels and their use in region segmentation.
- 425 new images, 135 new drawings, 220 new exercises and 120 MATLAB projects.
- Two new chapters:
 - ◆ A chapter dealing with active contours for image segmentation, including snakes and level sets.
 - ◆ A chapter that brings together wavelets, several new transforms, and many of the image transforms that were scattered throughout the book.
- A complete update of the image pattern recognition chapter to incorporate new material on deep neural networks, backpropagation, deep learning, and especially, deep convolutional neural networks.
- Coverage of feature extraction, including the Scale Invariant Feature Transform (SIFT, maximally stable extremal regions (MSERs), and corner detection.
- Coverage of the fundamentals of spatial filtering, image transforms, and finite differences with a focus on edge detection.

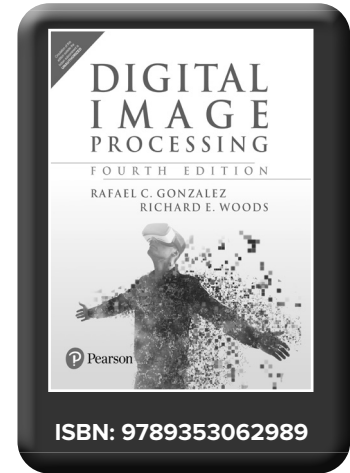
Contents

- | | |
|--|--|
| 1. Introduction | 8. Image Compression and Watermarking |
| 2. Digital Image Fundamentals | 9. Morphological Image Processing |
| 3. Intensity Transformations and Spatial Filtering | 10. Image Segmentation I: Edge Detection, |
| 4. Filtering in the Frequency Domain | 11. Image Segmentation II: Active Contours: Snakes and |
| 5. Image Restoration and Reconstruction | Level Sets |
| 6. Wavelet and Other Image Transforms | 12. Feature Extraction |
| 7. Color Image Processing | 13. Image Pattern Classification |

About the Author

Rafael C. Gonzalez received the B.S.E.E. degree from the University of Miami in 1965 and the M.E. and Ph.D. degrees in electrical engineering from the University of Florida, Gainesville, in 1967 and 1970, respectively. He joined the Electrical and Computer Engineering Department at University of Tennessee, Knoxville (UTK) in 1970, where he became Associate Professor in 1973, Professor in 1978, and Distinguished Service Professor in 1984. He is currently a Professor Emeritus at UTK. Gonzalez is the founder of the Image & Pattern Analysis Laboratory and the Robotics & Computer Vision Laboratory at the University of Tennessee.

Richard E. Woods earned his B.S., M.S., and Ph.D. degrees in Electrical Engineering from the University of Tennessee, Knoxville. His professional experiences range from entrepreneurial to the more traditional academic, consulting; governmental, and industrial pursuits. Most recently, he founded MedData Interactive, a high technology company specializing in the development of hand-held computer systems for medical applications. He was also a founder and Vice President of Perceptics Corporation.



Fundamentals of Digital Image Processing

Anil K. Jain

Pages: 592

Year: 2015

About the Book

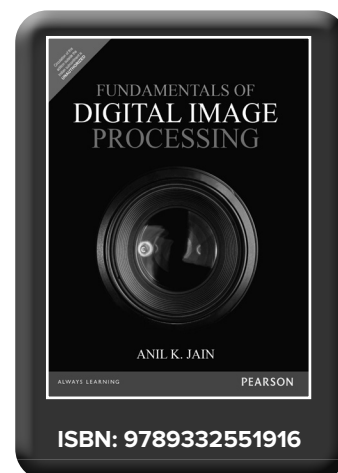
A thorough overview of the major topics in digital image processing — representation, processing techniques, and communication.

Features

- Covers aspects of image representation including luminance, color, spatial and temporal properties of vision, and digitization.
- Explores various image processing techniques.
- Discusses algorithm development (software/firmware) for image transforms, enhancement, reconstruction, and image coding.

Contents

1. Introduction
2. Two Dimensional Systems and Mathematical Preliminaries
3. Image Perception
4. Image Sampling and Quantization
5. Image Transforms
6. Image Representation by Stochastic Models
7. Image Enhancement
8. Image Filtering and Restoration
9. Image Analysis and Computer Vision
10. Image Reconstruction From Projections
11. Image Data Compression



Digital Signal Processing

Discrete-Time Signal Processing, 3/e

Alan V. Oppenheim | Ronald W. Schaffer

Pages: 1064

Year: 2014



About the Book

The definitive, authoritative text on DSP — ideal for those with an introductory-level knowledge of signals and systems. Written by prominent DSP pioneers, it provides thorough treatment of the fundamental theorems and properties of discrete-time linear systems, filtering, sampling, and discrete-time Fourier Analysis. By focusing on the general and universal concepts in discrete-time signal processing, it remains vital and relevant to the new challenges arising in the field.

Features

- Chapter organization is self-contained — A background of advanced calculus and exposure to linear system theory for continuous-time signals is inferred
- Material on
- Multi-rate filtering banks
- The discrete cosine transform
- Noise-shaping sampling strategies
- Includes several dozen problem-solving examples that not only illustrate key points, but demonstrate approaches to typical problems related to the material
- Contains a wealth of class-tested problems which are the best produced over decades of undergraduate and graduate signal processing classes at MIT and Georgia Tech
- Problems are organized by level of difficulty into separate categories
- Basic Problems with Answers to allow students to check their results, but not solutions (20 per chapter)
- Basic Problems - without answers
- Advanced Problems - provide an opportunity for students to understand
- Extension Problems - start from the discussion in the text and lead students beyond to glimpse some advanced areas of signal processing
- Offers a wealth of problems and examples

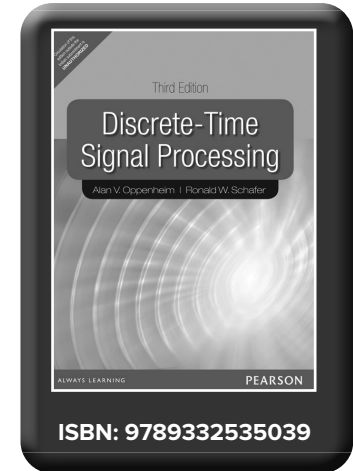
Contents

1. Introduction
 2. Discrete Time-Signals and Systems
 3. The z-Transform
 4. Sampling of Continuous-Time Signals
 5. Transform Analysis of Linear Time-Invariant Systems
 6. Structures for Discrete-Time Systems
 7. Filter Design Techniques
 8. The Discrete Fourier Transform
 9. Computation of the Discrete Fourier Transform
 10. Fourier Analysis of Signals Using the Discrete Fourier Transform
 11. Parametric Signal Modeling
 12. Discrete Hilbert Transforms
- Appendix A:** Random Signals
Appendix B: Continuous-Time Filters
Appendix C: Answers to Selected Basic Problems

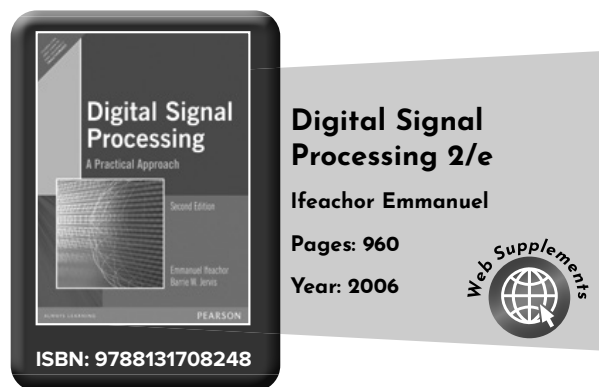
About the Author(S)

Alan V. Oppenheim, Massachusetts Institute of Technology

Ronald W. Schaffer, Georgia Institute of Technology



➡ ALSO AVAILABLE...



Digital Signal Processors

Introduction to Digital Signal Processing

Johnny R. Johnson

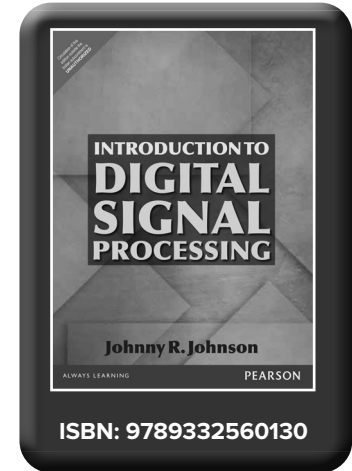
Pages: 432

Year: 2015



About the Book

This introductory book on digital filtering and digital signal processing is pedagogically sound and self-contained: the student is assumed to have only a background in calculus and an exposure to continuous-time linear systems theory.



Digital Signal Processing

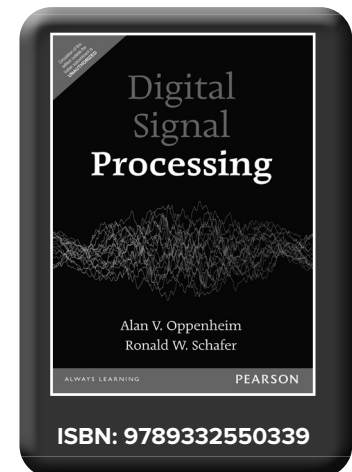
Alan V. Oppenheim | Ronald W. Schafer

Pages: 608

Year: 2015

About the Book

An up-to-date and detailed introduction to the fundamentals of processing signals by digital techniques and their applications to practical problems.



Electromagnetics

Electromagnetic Fields and Waves, 3/e

S. Salivahanan | S. Karthie

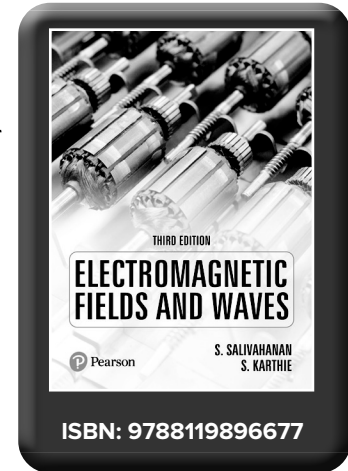
Pages: 796

Year: 2024



About the Book

Electromagnetic fields and waves elucidates the fundamentals of electromagnetic fields for B.E/B. Tech courses in Electrical and Electronics Engineering, Electronics and Communication Engineering, Electronics and Telecommunication Engineering, M.Sc. (Electronics), B.Sc. (Physics), AMIE, Grade IETE degree programs and competitive examinations. The book comprises ten chapters arranged sequentially and presented in simple reader-friendly language. To aid understanding, numerous numerical problems with step-by-step solutions are provided. Each chapter concludes with a set of review questions to help readers to test their understanding of the subject.



Features

- Presents the concepts in a simple and lucid manner providing clear explanations ideal for beginner readers.
- Detailed coverage of topics like static and dynamic fields, and their applications in electromagnetics.
- Encourages self-learning through numerous step-by-step solved examples
- Offers excellent pedagogy with 300 illustrations, 575 solved examples and 930 review questions

Contents

1. Vector Analysis
2. Static Electric Fields
3. Conductors and Dielectrics
4. Static Magnetic Fields
5. Magnetic Forces and Materials
6. Time-Varying Fields and Maxwell's Equations
7. Electromagnetic Waves
8. Transmission Lines-I
9. Transmission lines-II
10. Waveguides

About the Author

S. Salivahanan, Vice Chancellor, Vel Tech Rangarajan Dr. Sagunthala R&D Institute of Science and Technology, Chennai.

S. Karthie, Associate Professor, ECE, SSN College of Engineering, Chennai.

Electromagnetic Field Theory and Transmission Lines

G. S. N. Raju

Pages: 584

Year: 2006



About the Book

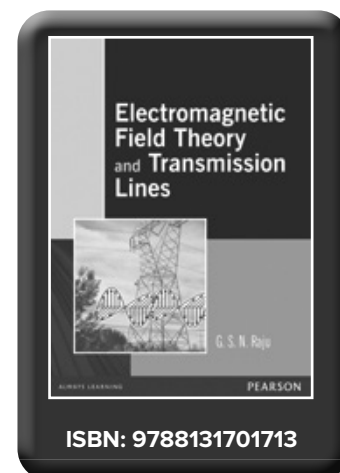
Electromagnetic Field Theory and Transmission Lines is an ideal textbook for a single semester, first course on Electromagnetic Field Theory (EMFT) at the undergraduate level. This book uses plain and simple English, diagrammatic representations and real life examples to explain the fundamental concepts, notations, representation and principles that govern the field of EMFT. The chapters cover every aspect of EMFT from electrostatics to advanced topics dealing with Electromagnetic Interference (EMI)/Electromagnetic Compatibility (EMC), EMC standards and design methods for EMC. Careful and detailed explanation of challenging concepts will help students understand better.

Features

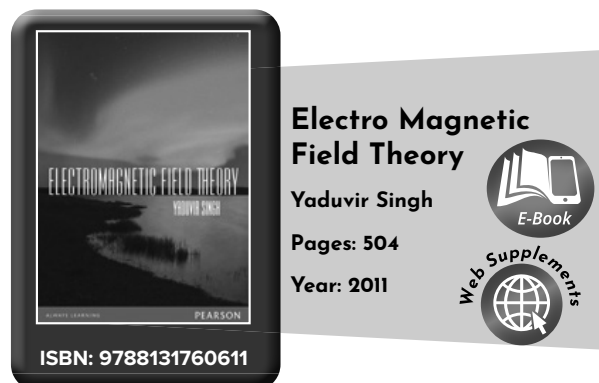
- Simple, clear and concise presentation
- Balanced exposition to both theory and application
- Unique introduction that discusses the fundamental concepts, notations, representation and principles that govern the field of EMFT
- Includes an exclusive chapter on basic mathematics required for problem solving

Contents

1. Mathematical Preliminaries
2. Electrostatic Fields
3. Steady Magnetic Fields
4. Maxwell's Equations
5. Electromagnetic Fields and Waves
6. Guided Waves
7. Transmission Lines
8. Radiation and Antennas
9. Advanced Topics



➡ ALSO AVAILABLE...



Electronic Devices: Conventional Current Version, 10/e

Thomas L Floyd

Pages: 940

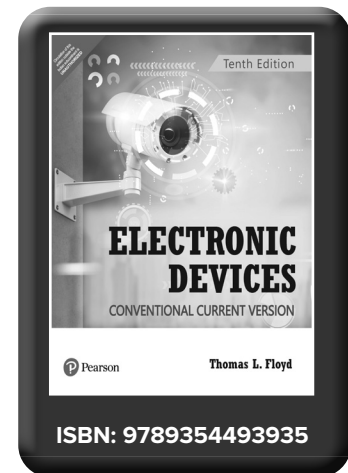
Year: 2021



About the Book

Electronic Devices (Conventional Current Version), 10/e, provides a solid foundation in basic analog electronics and a thorough introduction to analog integrated circuits and programmable devices. The text identifies the circuits and components within a system, helping students see how the circuit relates to the overall system function. Photos and illustrations and easy-to-follow worked examples support the text's strong emphasis on real-world application and troubleshooting.

Updated throughout, the Tenth Edition features selected circuits keyed to Multisim V14 and LT Spice files so that students learn how to simulate, analyze, and troubleshoot using the latest circuit simulation software.



Features

- Provides a solid foundation in basic principles and then moves into practical applications of those principles
- Teaches students practical troubleshooting techniques. Throughout the text, troubleshooting sections present methods and procedures for identifying, isolating, and correcting faulty devices and circuits.
- UPDATED: Diversified problem sets—including basic, advanced, troubleshooting, datasheet, and Multisim troubleshooting problems—offer a chance to practice applying theorems and formulas, encouraging students to think through a solution in a logical manner. Many new problems are included in the Tenth Edition.
- UPDATED: Offers expanded coverage of key topics, such as:
 - ◆ FETs, including JFET limiting parameters, FINFET, UMOSFET, Current source biasing, Cascode dual-gate MOSFET, and tunneling MOSFET
 - ◆ Thyristors, including SSRs using SCRs, and motor speed control
 - ◆ Switching circuits, including interfacing with logic circuits
 - ◆ PLL

Contents

1. Introduction to Semiconductors
2. Diodes and Applications
3. 3 Special-Purpose Diodes
4. Bipolar Junction Transistors
5. Transistor Bias Circuits
6. BJT Amplifiers
7. BJT Power Amplifiers
8. Field-Effect Transistors (FETs)
9. FET Amplifiers and Switching Circuits
10. Amplifier Frequency Response
11. Thyristors
12. The Operational Amplifier
13. Basic Op-Amp Circuits
14. Special-Purpose Integrated Circuits
15. Active Filters
16. Oscillators
17. Voltage Regulators

Electronic Devices and Circuit Theory, 11/e

Robert L. Boylestad | Louis Nashelsky

Pages: 952

Year: 2015



About the Book

The eleventh edition of Electronic Devices and Circuit Theory offers students a complete, comprehensive coverage of the subject, focusing on all the essentials they will need to succeed on the job. Setting the standard for nearly 30 years, this highly accurate text is supported by strong pedagogy and content that is ideal for new students of this rapidly changing field. This text is an excellent reference work for anyone involved with electronic devices and other circuitry applications, such as electrical and technical engineers.

Features

- Using a systems approach, this edition represents an exhaustive effort to enhance the material that introduces the concept of systems engineering
- Ample photographs and examples enhances students' understanding of important topics
- Practical applications in every chapter that cover the latest examples from the industry

Contents

1. Semiconductor Diodes
2. Diode Applications
3. Bipolar Junction Transistors
4. DC Biasing—BJTs
5. BJT AC Analysis
6. Field-Effect Transistors
7. FET Biasing
8. FET Amplifiers
9. BJT and JFET Frequency Response
10. Operational Amplifiers
11. Op-Amp Applications
12. Power Amplifiers
13. Linear-Digital ICs
14. Feedback and Oscillator Circuits
15. Power Supplies (Voltage Regulators)
16. Other Two-Terminal Devices
17. pnpn and Other Devices

Appendix A: Hybrid Parameters—Graphical Determinations and Conversion Equations (Exact and Approximate)

Appendix B: Ripple Factor and Voltage Calculations

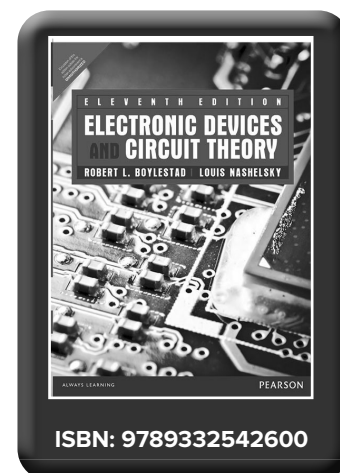
Appendix C: Charts and Tables

Appendix D: Solutions to Selected Problems

About the Author

Robert L. Boylestad, Queensborough Community College

Louis Nashelsky, Queensborough Community College



Solid State Electronic Devices, 7/e

Ben G. Streetman | Sanjay Kumar Banerjee

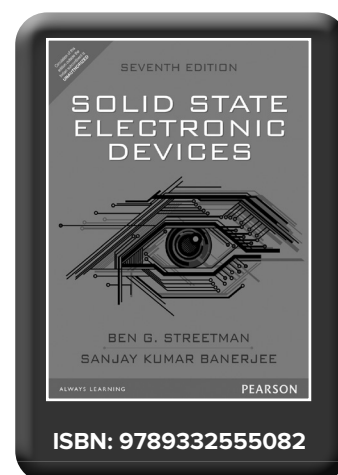
Pages: 624

Year: 2015



About the Book

One of the most widely used introductory books on semiconductor materials, physics, devices and technology, Solid State Electronic Devices aims to develop basic semiconductor physics concepts, so students can better understand current and future devices and provide a sound understanding of current semiconductor devices and technology, so that their applications to electronic and optoelectronic circuits and systems can be appreciated. Students are brought to a level of understanding that will enable them to read much of the current literature on new devices and applications.



Features

- The basics of semiconductor materials and conduction processes in solids are incorporated to understand p-n junctions, bipolar and metal oxide semiconductor transistors, optoelectronic and other devices.
- A discussion of device fabrication processes and CMOS integrated circuit technology, along with data in the Appendices, provide a useful understanding of how semiconductor devices are made.
- The extensive discussion of circuit and other application examples provides students with feedback about the practical relevance of the theory.
- The discussion of MOS devices is updated, both in the underlying theory of ballistic FETs as well as discussion of advanced MOSFETs such as FinFETs, strained Si devices, metal gate/high-k devices, III-V high channel mobility devices.
- The treatment of optoelectronic devices is updated, including high bandgap nitride semiconductors and quantum cascade lasers
- A brand new section on nanoelectronics introduces students to exciting concepts such as 2D materials including graphene and topological insulators, 1D nanowires and nanotubes, and 0D quantum dots.
- A new discussion highlights spintronics and novel resistive and phase change memories

Contents

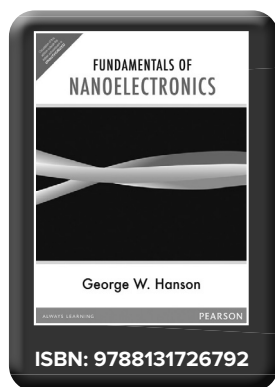
1. Crystal Properties and Growth of Semiconductors
2. Atoms And Electrons
3. Energy Bands And Charge Carriers In Semiconductors
4. Excess Carriers In Semiconductors
5. Junctions
6. Field-Effect Transistors
7. Bipolar Junction Transistors
8. Optoelectronic Devices
9. Integrated Circuits
10. High-frequency, high-power and Nanoelectronic devices
11. Municipal Solid Waste
12. Hazardous Waste Management
13. Air Pollution and Control
14. Noise Pollution and Control

About the Author

Ben G. Streetman is Dean Emeritus of the College of Engineering at The University of Texas at Austin.

Sanjay Kumar Banerjee is the Cockrell Chair Professor of Electrical and Computer Engineering, and Director of the Microelectronics Research Center at The University of Texas at Austin.

➡ ALSO AVAILABLE...

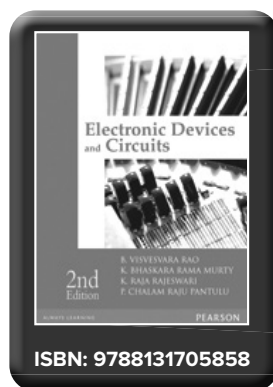
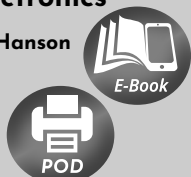


Fundamentals of Nanoelectronics

George W. Hanson

Pages: 400

Year: 2009

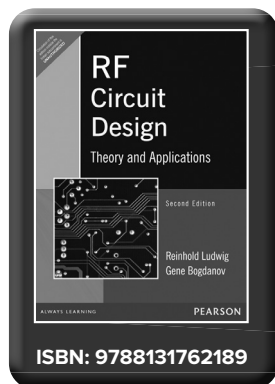


Electronic Devices and Circuits

B. Visvesvara Rao

Pages: 424

Year: 2006

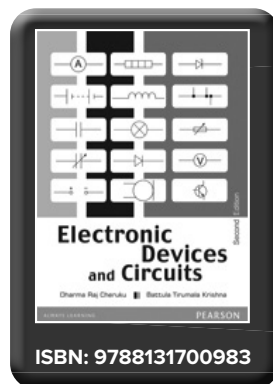


RF Circuit Design: Theory and Applications

Reinhold Ludwig

Pages: 720

Year: 2011



Electronic Devices and Circuits, 2/e

Cheruku

Pages: 664

Year: 2008



Optical Fiber Communications: Principles and Practice, 3/e

John M. Senior

Pages: 1128

Year: 2010



About the Book

Optical Fiber Communications is an established core text in a field that is growing fast, and in which technology is constantly evolving. The text succeeds in giving a practical introduction to the fundamentals, problems and techniques of design and utilisation of optical fiber systems. It is respected as the most comprehensive and practical book in the market. This new edition will retain all core features, while incorporating recent improvements and developments in the field. Optical fiber systems have now become more sophisticated and, as a result, are now the communication method of choice for many systems. New/additional material will include optical amplifiers, soliton systems and optical networks.

Features

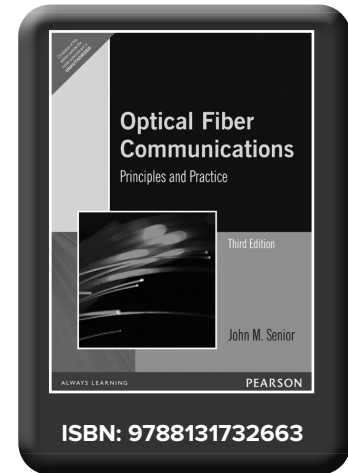
- SI units used throughout
- Includes all major developments in single-mode fibers
- Contains a wealth of worked examples, problems and exercises
- Has broadest coverage of optical amplifiers and optic devices
- Coverage of advanced systems and techniques
- Extensive references throughout the text
- Worked examples illustrate applications
- Coverage of op amps and soliton systems
- Updated and expanded coverage of optical networks

Contents

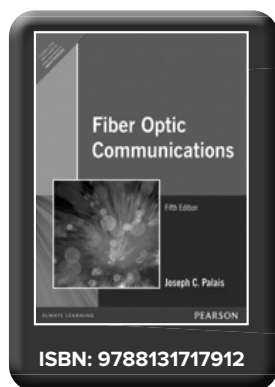
1. Introduction
2. Optical fiber waveguides
3. Transmission characteristics of optical fibers
4. Optical fibers and cables
5. Optical fiber connection: joints and couplers
6. Optical sources 1: the laser
7. Optical sources 2: the light emitting diode
8. Optical detectors
9. Direct detection receiver performance considerations
10. Optical amplification and integrated optics
11. Integrated Optics and Photonics
12. Optical fiber systems 1: intensity modulation/direct detection
13. Optical Fiber Systems 2: coherent and phase modulated
14. Optical fiber measurements
15. Optical Networks

About the Author

John Senior is Pro Vice-Chancellor for Research and Dean of the Faculty of Engineering and Information Sciences at the University of Hertfordshire, UK.

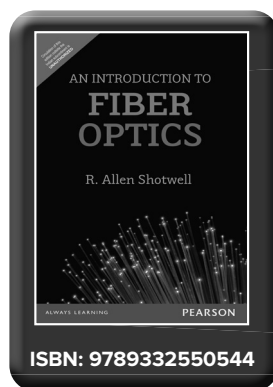


➡ ALSO AVAILABLE...



Fiber Optic Communications, 5/e
Palais
Pages: 456
Year: 2008

ISBN: 9788131717912



An Introduction to Fiber Optics
Shotwell
Pages: 184
Year: 2015



ISBN: 9789332550544

Biomedical Instrumentation

Biomedical Instrumentation and Measurements, 2/e

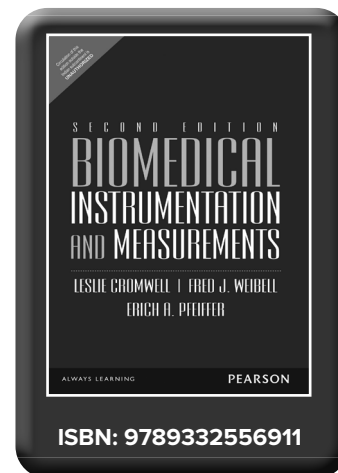
Leslie Cromwell | Fred J. Weibell | Erich A. Pfeiffer

Pages: 526

Year: 2015

About the book

This well illustrated book provides a broad and highly practical introduction to all aspects of biomedical instrumentation from design and use to maintenance. Readers having an elementary technical background in electronics or engineering and a casual familiarity with physiology should find this book quite beneficial. Besides, students of life sciences and other allied fields with some knowledge of instrumentation should also find this text useful. Furthermore, it should prove to be an excellent reference book for medical/paramedical personnel.



ISBN: 9789332556911

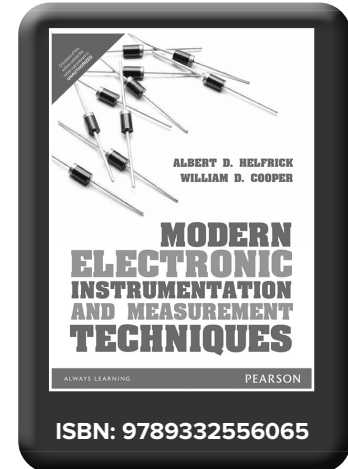
Electronic Instrumentation and Measurement

Modern Electronic Instrumentation and Measurement Techniques

Albert D. Helfrick | William D. Cooper

Pages: 424

Year: 2015



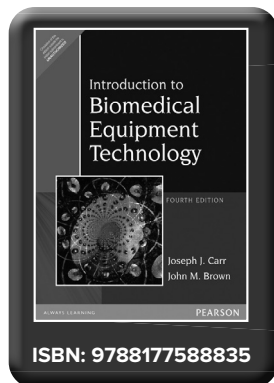
About the Book

Modern Electronic Instrumentation and Measurement Techniques caters to the requirements of undergraduate students of Electronics and Communication Engineering and other courses in electronics. The book features a balanced coverage of basic measurement techniques such as accuracy, precision, standards, etc. with some clarification and modernization to include new standards.

Features

- Lucid coverage of standards of measurement, bridge measurements, signal generation, signal analysis, and computer-controlled test systems
- Supplemented by numerous illustrations, examples, and exercises to help understand the concepts better
- Essential for engineering students preparing for competitive examinations such as GATE and IES
- Lucid coverage of standards of measurement, bridge measurements, signal generation, signal analysis, and computer-controlled test systems
- Supplemented by numerous illustrations, examples, and exercises to help understand the concepts better
- Essential for engineering students preparing for competitive examinations such as GATE and IES

➡ ALSO AVAILABLE...

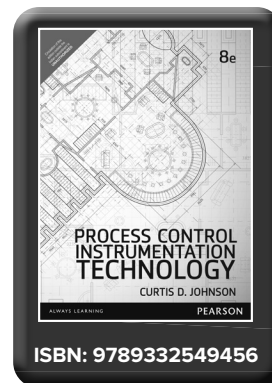


Introduction to Biomedical Equipment Technology, 4/e

Carr

Pages: 768

Year: 2006



Process Control Instrumentation Technology, 8/e

Curtis D. Johnson

Pages: 684

Year: 2015



Linear IC Applications

Op-Amps and Linear Integrated Circuits, Revised 4e

Ramakant A. Gayakwad

Pages: 632

Year: 2021



About the Book

Op-Amps and Linear Integrated Circuits, revised fourth edition combines the right blend of theory and practice to present a simplified and methodical way to design, and develop students' understanding of the differences between theoretical, practical, and simulated results in the analysis of op-amps circuits. The book discusses various op-amps characteristics, circuit analysis and design considerations and provides students with a firm grasp of basic principles enabling them to adapt to changing technology as new devices appear on the market.

Features

- PSpice simulation examples and problems in the book illustrates how concepts can be simulated using the PSpice program and demonstrates step-by-step approaches to circuit simulation
- An entire chapter on specialized integrated applications—includes universal active and switched capacitor filters; phase-locked loop; 555 timer; voltage and switching regulators; and power amplifiers
- New! IC design projects have been added that are based on op-amps and 555 timer
- New! illustrative examples and exercise problems added
- New! 150 problems from previous years' GATE question papers has been included

Contents

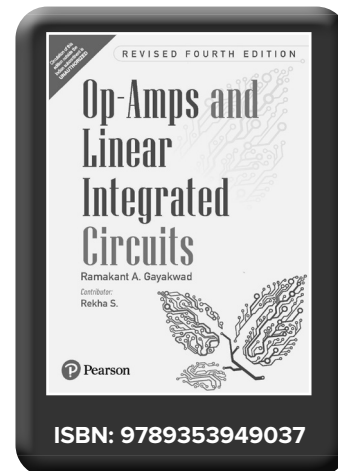
1. Introduction to Operational Amplifiers
2. Interpretation of Data Sheets and Characteristics of an Op-amp
3. An Op-amp with Negative Feedback
4. The Practical Op-amp
5. Frequency Response of an Op-amp
6. General Linear Applications
7. Active Filters and Oscillators
8. Comparators and Converters
9. Specialized IC Applications
10. Selected IC System Projects

About the Author

Ramakant A. Gayakwad, Mt. Sierra College

Contributor:

Rekha S, National Institute of Technology Karnataka, Surathkal



Operational Amplifiers with Advanced Applications

K. C. Selvam

Pages: 576

Year: 2024



About the Book

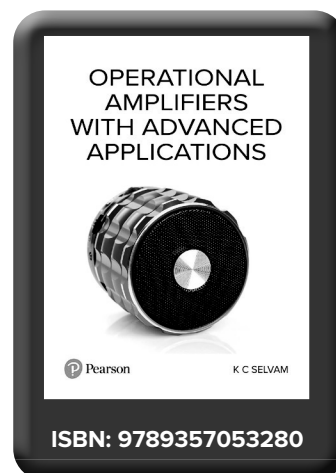
The book provides a comprehensive exploration of operational amplifiers (op-amps) and their myriad applications in both linear and non-linear circuits. Beginning with a foundational introduction to op-amps, the text delves into linear circuits, followed by an examination of non-linear circuits. The middle sections cover essential topics such as waveform generators, active filters, and data converters. Subsequent chapters expand on the use of op-amps in more complex analog and digital applications, including voltage regulators, analog multipliers, dividers, and the versatile 555 timer circuits. The final chapters focus on the implementation of logic gates, combinational circuits, and flip-flops using op-amps. The appendices offer practical insights through various tutor kits developed by the author and additional resources, making this book an invaluable resource for both students and professionals in the field of electronics.

Features

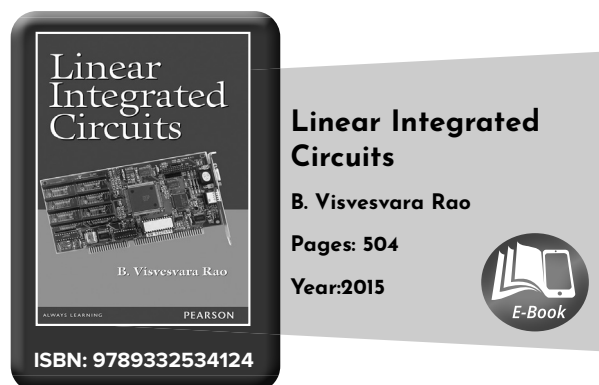
- **Comprehensive Coverage:** The book covers a wide range of topics from basic to advanced applications of operational amplifiers, making it suitable for both beginners and experienced practitioners.
- **Detailed Practical Guides:** Appendices include practical tutor kits for op-amp circuits, analog functions, and digital trainer kits developed by the author, providing hands-on learning opportunities.
- **In-Depth Exploration of Analog and Digital Applications:** Extensive chapters on analog multipliers, dividers, waveform generators, and active filters, as well as the use of op-amps in digital logic and combinational circuits, highlight the versatility and essential role of op-amps in various electronic applications.

About the Author

K. C. Selvam Department of Electrical Engineering Indian Institute of Technology Madras Chennai, India.



➡ ALSO AVAILABLE...



Embedded Systems: Concepts, Design and Programming

Himanshu B. Dave | Parag Dave

Pages: 656

Year: 2015

About the Book

This introductory textbook on Embedded Systems focuses on the design and development of hardware and software for embedded systems. The full spectrum of topics related to the embedded system development cycle such as CPU, Memory, Transducers, Operating System, Issues in RTOS, Legacy Microcontrollers and Processors are discussed in detail. Pedagogical features such as real-world case studies and live examples of embedded systems make learning and teaching from this book a pleasure.

Features

- Extensive coverage on
 - ◆ ADC & DAC Converters
 - ◆ Noise & EMI in Embedded Systems
 - ◆ Operating Systems
 - ◆ Digital Signal Processing
- Large number of live examples and case studies
- Exclusive chapter on Issues in Real Time Operating Systems
- In-depth discussion on embedded system debugging
- Excellent Pedagogy
 - ◆ 350+ Figures and Illustrations
 - ◆ 150+ Solved Questions
 - ◆ 400+ Unsolved Questions
 - ◆ 300+ MCQs
 - ◆ 50+ Lab assignments
 - ◆ 15+ Case Studies

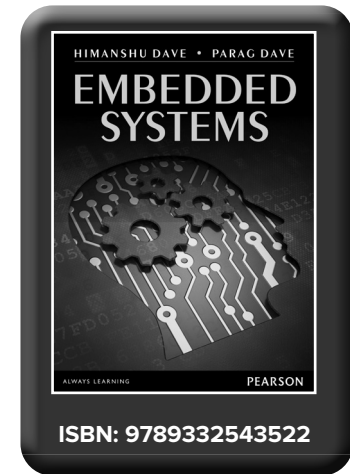
Contents

1. Embedded System
 2. A simple embedded system: Material filling machine
 3. CPU and Memory
 4. Input/Output (I/O) Methods
 5. Input/Output (I/O) Interfaces and transducers
 6. Operating Environment
 7. Development Environment
 8. Programming in C
 9. Case studies
 10. Embedded systems debugging
 11. An example design
- Appendix A:** Logic Circuits, FPGA and ASIC
Appendix B: Some Legacy Microcontrollers
Appendix C: Noise and EMI in embedded systems
Appendix D: ADC and DAC converters
Appendix E: Digital Signal Processing and Transforms

About the Author

Himanshu B. Dave, Senior Consultant-Training elnfochips Ahmedabad, Gujarat, Former Professor IIT Kharagpur, WB

Parag Dave, Former Lecturer, Department of Computer Engineering, SVNIT, Surat, Gujarat



Assembly Language for x86 Processors, 7/e

Kip R. Irvine

Pages: 720

Year: 2018



About the Book

Assembly Language for x86 Processors, 7e is suitable for undergraduate courses in assembly language programming and introductory courses in computer systems and computer architecture. Proficiency in one other programming language, preferably Java, C, or C++, is recommended.

Written specifically for 32- and 64-bit Intel/Windows platform, this complete and fully updated study of assembly language teaches students to write and debug programs at the machine level. This text simplifies and demystifies concepts that students need to grasp before they can go on to more advanced computer architecture and operating systems courses. Students put theory into practice through writing software at the machine level, creating a memorable experience that gives them the confidence to work in any OS/machine-oriented environment.



Features

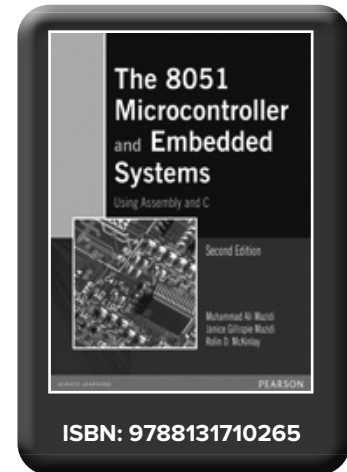
- **NEW!** Protected mode programming is entirely the focus of the printed chapters (1 through 13). This edition uses the x86 and x86-64 processor types, explaining the differences between instruction operands and basic architecture differences.
- Students create applications that take full advantage of 32-bit and 64-bit processors, using protected mode and flat memory addressing. This also allows students to create Microsoft® Windows applications.
- 16-bit programming is still covered, using chapters from the previous edition, supplied electronically from the Pearson supplements website.
- **UPDATED:** There is far less dependency on the author's subroutine libraries in this edition. Students are encouraged to call system functions themselves and use the Visual Studio debugger to step through the programs. The Irvine32 and Irvine64 libraries are available to help students handle input/output, but their use is not required.
- **UPDATED:** This edition features increased use of supplementary explanations of short program examples, particularly in the first 5 chapters.
- Review exercises aid students in their comprehension skills. Answers to questions are included for instructors to use in test material.
- **UPDATED:** New programming exercises have been added, others removed, and a few existing exercises were modified. Programming exercises with solutions give students first-hand experience in writing software and allow them to immediately check their results.
- **UPDATED:** Review questions and exercises have been moved from the middle of the chapter to the end of chapters, and divided into two sections: (1) Short answer questions, and (2) Algorithm workbench exercises. The latter exercises require the student to write a short amount of code to accomplish a goal.
- **NEW:** Each chapter now has a Key Terms section, listing new terms and concepts, as well as new MASM directives and Intel instructions.
- Optional chapter topics are offered in the final chapters. This chapter flexibility allows instructors to cover these chapters in varying order and depth.
- **NEW:** Early chapters now include short sections that feature 64-bit CPU architecture and programming, and we have created a 64-bit version of the book's subroutine library named Irvine64.
- **UPDATED:** Students can program in either 32-bit or 64-bit mode.
- **UPDATED:** Legacy chapters on 16-bit programming are provided electronically through the Pearson supplements website.

The 8051 Microcontroller and Embedded Systems: Using Assembly and C, 2/e

Muhammad Ali Mazidi | Janice Gillispie Mazidi |
Rolin McKinlay

Pages: 560

Year: 2007



About the Book

This textbook covers the hardware and software features of the 8051 in a systematic manner. Using Assembly language programming in the first six chapters, it provides readers with an in-depth understanding of the 8051 architecture. From Chapter 7, this book uses both Assembly and C to show the 8051 interfacing with real-world devices such as LCDs, keyboards, ADCs, sensors, real-time clocks, and the DC and Stepper motors. The use of a large number of examples helps the reader to gain mastery of the topic rapidly and move on to the topic of embedded systems project design.

Features

- A new chapter on 8051 C programming.
- A new section on the 8051 C programming of timers.
- A new section on the second serial port of the DS89C4x0 chip.
- A new section on the 8051 C programming of the second serial port.
- A new section on the 8051 C programming of interrupts.
- Programming of the 1KB SRAM of the DS89C4x0 chip.
- A new section on the 8051 C programming of external memory.
- A new chapter on the DS12887 RTC (real-time clock) chip.
- A new chapter on motors, relays, and optoisolators.

Contents

- | | |
|---|---|
| 1. The 8051 Microcontroller | 10. 8051 Serial Port Programming in Assembly and C |
| 2. 8051 Assembly Language Programming | 11. Interrupts Programming in Assembly and C |
| 3. Jump, Loop, and Call Instructions | 12. LCD and Keyboard interfacing |
| 4. I/O Port Programming | 13. ADC, DAC, and Sensor interfacing |
| 5. 8051 Addressing Modes | 14. 8051 Interfacing to External Memory |
| 6. Arithmetic and Logic instructions and Programs | 15. 8051 Interfacing with The 8255 |
| 7. 8051 Programming in C | 16. DS12887 RTC Interfacing and Programming |
| 8. 8051 Hardware Connection and Intel Hex File | 17. Motor Control: Relay, PWM, DC, and Stepper Motors |
| 9. 8051 Timer Programming in Assembly and C | |

About the Authors

Muhammad Ali Mazidi holds Master's degrees from both Southern Methodist University and the University of Texas at Dallas. He is co-author of a widely used textbook, *The 80x86 IBM PC and Compatible Computers*, also available from Prentice Hall. He teaches microprocessor-based system design at DeVry University in Dallas, Texas.

Janice Gillispie Mazidi has a Master of Science degree in Computer Science from the University of North Texas. She has several years of experience as a software engineer in Dallas.

Rolin McKinlay has a BSEET from DeVry University. He is currently working on his Master's degree and PE license in the state of Texas. He is currently self-employed as a programmer and circuit board designer, and is a partner in MicroDigitalEd.com.

An Embedded Software Primer

David E. Simon

Pages: 444

Year: 2005



About the Book

An Embedded Software Primer is a clearly written, insightful manual for engineers interested in writing embedded-system software. The example-driven approach puts you on a fast track to understanding embedded-system programming and applying what you learn to your projects. This book will give you the necessary foundation to work confidently in this field. Building on a basic knowledge of computer programming concepts

Features

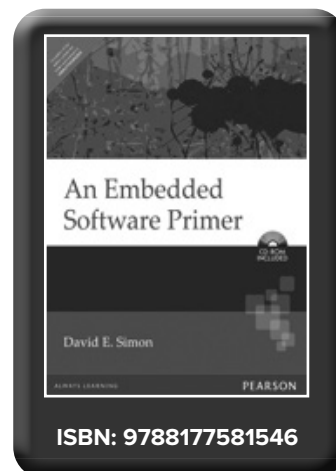
- Learn core principles and advanced techniques of embedded-system software
- Find out what a real-time operating system (RTOS) does and how to use one effectively
- Experiment with sample code and the uC/OS RTOS version 1.11 (on the accompanying CD)
- Apply what you learn, no matter which microprocessor or RTOS you use

Contents

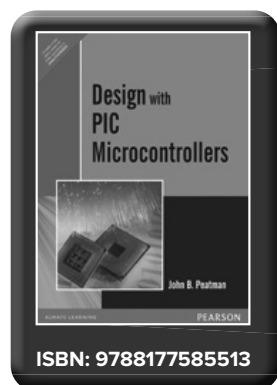
1. A First Look at Embedded Systems
2. Hardware Fundamentals for the Software Engineer
3. Advanced Hardware Fundamentals
4. Interrupts
5. Survey of Software Architecture
6. Introduction to Real-Time Operating Systems
7. More Operating System Services
8. Basic Design Using a Real-Time Operating System
9. Embedded Software Development Tools
10. Debugging Techniques
11. An Example System

About the Author

David E. Simon is a partner in Probitas Corporation, a software development consulting firm. Much of his Work at Probitas is in embedded systems for firms such as Apple, Adobe, Hewlett-Packard, and Symbol technologies. David has 20 years of experience in software development, and is the author of three previous books. He regularly teaches a class on embedded systems for the University of California at Berkeley Extension program.



➡ ALSO AVAILABLE...

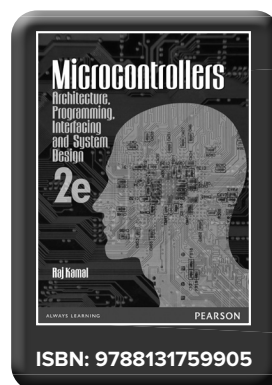


Design with PIC Microcontrollers

Peatman

Pages: 280

Year: 2005



Microcontrollers: Architecture, Programming, Interfacing and System Design, 2/e

Raj Kamal

Pages: 888 Year: 2011



Programmable logic Controllers

Programmable Logic Controllers, 2/e

James A. Rehg | Glenn J Sartori

Pages: 576

Year: 2016

About the Book

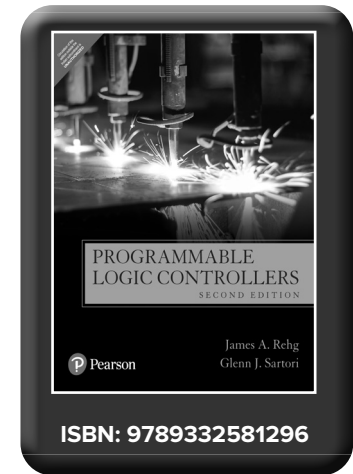
This text focuses on the theory and operation of PLC systems with an emphasis on program analysis and development. The book is written in easy-to-read and understandable language with many crisp illustrations and practical examples. It describes the PLC instructions for the Allen-Bradley PLC 5, SLC 500, and Logix processors with an emphasis on the SLC 500 system using numerous figures, tables, and example problems. The text features a new two-column and four-color interior design that improves readability and figure placement. The book's organization also has improved all the chapter questions and problems are listed in one convenient location in Appendix D with page locations for all chapter references in the questions and problems. This book describes the technology in a clear, concise style that is effective in helping students who have no previous experience in PLCs or discrete and analog system control.

Features

- Describes the PLC instructions for the Allen-Bradley PLC 5, SLC 500, and Logix processors with an emphasis on the SLC 500 system using numerous figures, tables, and example problems.
- Provides student problems from easy to challenging in the following five formats:
 - ◆ PLC system and setup based problems using the text CD
 - ◆ PLC 5
 - ◆ SLC 500
 - ◆ Logix
 - ◆ Challenge problems that could use any PLC system.
- Effective two-part organization:
 - ◆ Part I covers fundamental PLC concepts plus the operation and programming formats for the most frequently used PLC instructions.
 - ◆ Part II addresses advanced ladder logic instructions and applications, analog and process control instructions, the new IEC 61131 PLC languages, and industrial networks.
- Includes aCD-ROM with reference material from Allen-Bradley.
- Provides a concise description of the five IEC 61131 programming languages and includes detailed descriptions and example problems;

Contents

- | | |
|--|---|
| 1. Introduction to Programmable Logic Controllers | 12. Analog Sensors and Control Systems |
| 2. Input Devices and Output Actuators | 13. PLC Programming Standard IEC 61131-3 - Function Block Diagrams |
| 3. Introduction to PLC Programming | 14. Intermittent and Continuous Process Control |
| 4. Programming Timers | 15. PLC Programming Standard IEC 61131-3 - Text Based Languages |
| 5. Programming Counters | 16. PLC Programming Standard IEC 61131-3 - Sequential Function Charts |
| 6. Arithmetic and Move Instructions | 17. Appendix A - Glossary |
| 7. Comparison Instructions | 18. Appendix B - PLC Module Interface Circuits |
| 8. Program Control & Miscellaneous Instructions | 19. Appendix C—Programmable Logic Controller History |
| 9. Indirect and Indexed Addressing | |
| 10. Data Handling Instructions and Shift Registers | |
| 11. PLC Sequencer Functions | |



Programmable Logic Controllers: Principles and Applications, 5/e

John W. Webb | Ronald A. Reis

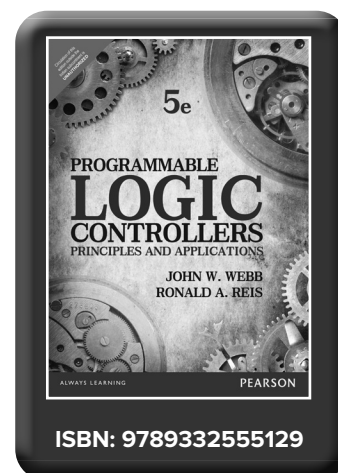
Pages: 476

Year: 2015



About the Book

For an undergraduate-level course on PLCs or Electronic Controls. This practical and clearly written introduction provides both fundamental and cutting-edge coverage on programmable logic controllers today a billion dollar industry. It combines comprehensive, accessible coverage with a wealth of industry examples that make intangible concepts come to life—offering students a broad-based foundation that will serve them well on the job. It examines every aspect of controller usage in an easy-to-understand, jargon-free narrative. Beginning with a basic layout the text goes right into programming techniques, it progresses through fundamental, intermediate, and advanced functions—and concludes with chapters on related topics. Applications are discussed for each PLC function, and vast arrays of examples and problems help students achieve an understanding of PLCs, and the experience needed to use them.



Features

- Latest developments in PLC model functions and networking capabilities.
- Provides students with guidelines on the most recent programming developments.
- New chapter on electrical devices connected to I/O modules.
- Provides students with a complete explanation of the latest technology in input/output on/off switching and analog devices.
- Updated and enhanced pedagogical tools—e.g. equipment illustrations, additional example problems, more troubleshooting questions, enhanced glossary and bibliography.
- Provides students with more effective tools that are easier to use and more motivating.
- Updated PLC manufacturers listing.
- Provides students with the most current listing of PLC manufacturers.
- Provides students with a comprehensive look at all the important new standards in the field.
- Provides students with helpful activities that reinforce the material in accompanying chapters in the book.
- Provides students with easy-to-follow guides for determining the important points within each chapter and learning them.
- Presents material in a logical and orderly fashion—Stand-alone chapters provide flexibility and customization.
- Provides students with fortified comprehension every step of the way, so that they can keep pace with technology.
- Maintains a generic approach—By exploring many alternative formats.
- Enables students to apply all the techniques presented to any manufacturer's equipment.

Contents

- I. PLC Basics
- II. Basic PLC Programming
- III. Basic PLC Functions
- IV. Intermediate Functions
- V. Data Handling Functions
- VI. PLC Functions Working with Bits
- VII. Advanced PLC Functions
- VIII. Related Topics
- Appendix A: PLC Manufacturers
- Appendix B: Operational Simulation and Monitoring
- Appendix C: Commonly Used Circuit Symbols
- Appendix D: Major PLC Instruction, Function, and Word Codes by Typical Manufacturers

Microprocessors

The Intel Microprocessors, 8/e

Barry B. Brey

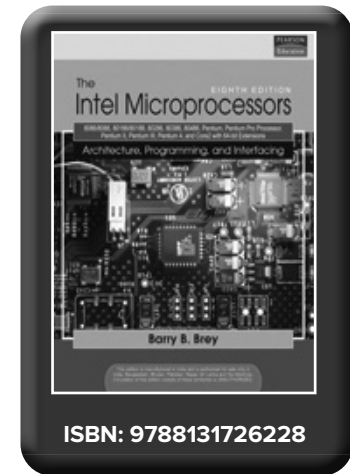
Pages: 944

Year: 2008



About the Book

This book provides a comprehensive view of programming and interfacing of the Intel family of Microprocessors from the 8088 through the latest Pentium 4 and Core2 microprocessors. The text is written for students who need to learn about the programming and interfacing of Intel microprocessors, which have gained wide and at times exclusive application in many areas of electronics, communications, and control systems, particularly in desktop computer systems. Many applications include Visual C++ as a basis for learning assembly language using the inline assembler. Organized in an orderly and manageable format, this text offers more than 200 programming examples using the Microsoft Macro Assembler program and provides a thorough description of each of the Intel family members, memory systems, and various I/O systems.



Features

- Illustrated concepts for students with relevant programming examples, many written in Visual C++ with embedded assembly language code.
- Coverage of how to develop software to control application interfaces to the microprocessor.
- Coverage of how to program the microprocessor using the popular Microsoft Visual C programming environment with embedded assembly language to control personal computers.
- Descriptions of how to use real mode (DOS) and protected mode (Windows) of the microprocessor.
- Explanation of the operation of a real-time operating system (RTOS) in an embedded environment.

Contents

1. Introduction to the Microprocessor and Computer
2. The Microprocessor and Its Architecture
3. Addressing Modes
4. Data Movement Instructions
5. Arithmetic and Logic Instructions
6. Program Control Instructions
7. Using Assembly Language With C/C++
8. Programming The Microprocessor
9. 8086/8088 Hardware Specifications
10. Memory Interface
11. Basic I/O Interface
12. Interrupts
13. Direct Memory Access and Dma-Controlled I/O
14. The Arithmetic Coprocessor, Mmx, and Simd Technologies
15. Bus Interface
16. The 80185, 80188, and 80286 Microprocessors
17. The 80386 and 80486 Microprocessors
18. The Pentium and Pentium Pro Microprocessors
19. The Pentium II, Pentium III, Pentium 4, and Core2 Microprocessors

Microcomputer Systems: The 8086/8088 Family Architecture Programming and Design, 2/e

Yu-Cheng Liu

Pages: 640

Year: 2015

About the Book

A comprehensive exploration of both the software and hardware for 6-bit microprocessors using the Intel 8086/8088 family — and their supporting devices.

Features

- Gives readers a working knowledge of programming and designing 8086/8088-based microcomputer systems through an abundance of examples.
- Covers the 8089 I/O processor, the 8087 numeric data processor, and how they can be integrated into an 8086/8088 based system.
 - Introduces the special features of 80130, 80186, and 80286.
 - Includes more than 390 flowcharts, programming examples, logic diagrams, tables, and other illustrations.

Contents

1. Introduction
2. 8086 Architecture
3. Assembler Language Programming
4. Modular Programming
5. Byte and String Manipulation
6. I/O Programming
7. Introduction to Multiprogramming
8. System Bus Structure

9. I/O Interfaces
10. Semiconductor Memory
11. Multiprocessor Configuration
12. VLSI Processing and Supporting Devices
13. The 80286/80287

Appendix: 8086/8088 Instruction Set



Microprocessors: Theory And Applications, 1/e

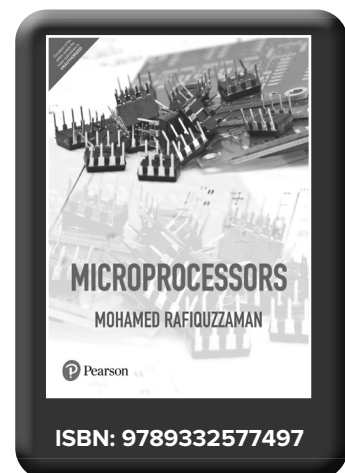
M. Rafiquzzaman

Pages: 480

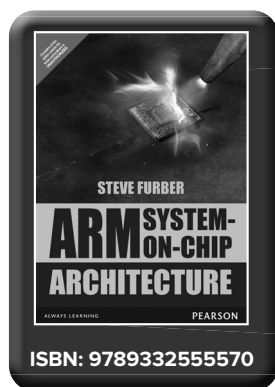
Year: 2016

About the Book

It addresses practical applications such as personal computers and robotics and provides details of architecture, instruction set, I.O. and system design associated with 8085, 8086 and 68000 respectively. The book also covers the basics of peripheral interfacing, including DMA concepts relating to 68000 - such as interfacing of keyboard, CRT, printer and floppy disk of a typical microprocessor. It contains a summary of interface standards such as IEEE 488, S-100, RS-232 and current loops.



➡ ALSO AVAILABLE...



ARM System-on-Chip Architecture 2/e

Steve Furber

Pages: 384

Year: 2015



Microwave Engineering

Microwave Devices and Circuits, 3/e

Samuel Y. Liao

Pages: 564

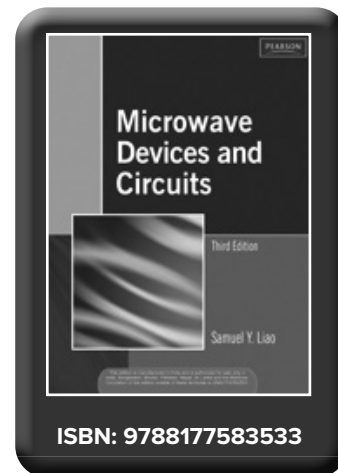
Year: 2005

About the Book

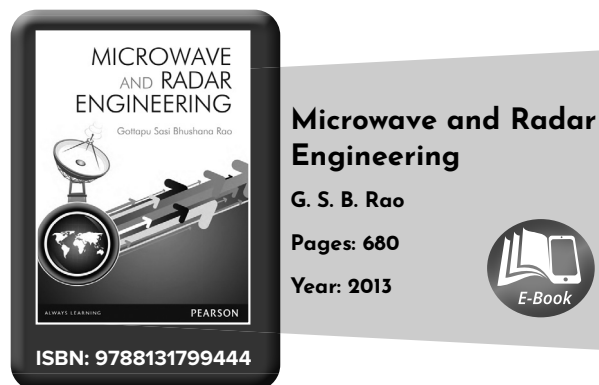
An ideal text and a ready reference on the latest in microwave electronic technology, this book provides a unified presentation of microwave solid-state devices, microwave tubes, and microwave circuits. This Third Edition has been extensively revised to better reflect modern advances in microwave technology. The text is ideal for microwaves or microwave engineering; physical electronics; microwave electronics courses.

Contents

1. Introduction between Electrons and Fields
2. Electromagnetic Plane Waves
3. Microwave Transmission Lines
4. Microwave Waveguides and Components
5. Microwave Transistors and Tunnel Diodes
6. Microwave Field-effect Transistors
7. Transferred Electron Devices (TEDs)
8. Avalanche Transit-time Devices
9. Microwave Linear-beam Tubes (O type)
10. Microwave Crossed-field Tubes (M type)
11. Striplines
12. Monolithic Microwave Integrated Circuits



➡ ALSO AVAILABLE...



Introduction to MATLAB, 3e

Dolores Etter

Pages: 248

Year: 2020

About the Book

Best-selling author Delores Etter provides an up-to-date introduction to MATLAB. Using a consistent five-step problem-solving methodology, Etter describes the computational and visualization capabilities of MATLAB and illustrates the problem-solving process through a variety of engineering examples and applications.

Features

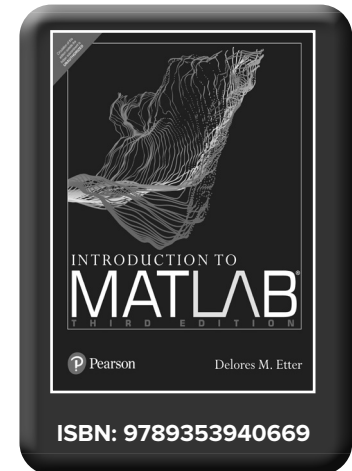
- The discussions, screen captures, examples, and problem solutions have been updated to reflect MATLAB Version 8.2, R2013b.
- A discussion of the new Help browser is included along with screen captures to illustrate using this feature.
- The section on random number generation has been rewritten to reflect changes relative to the random number seed and to include the new function for generating random integers.
- The section on numerical integration has been rewritten to support the new integration function. This includes references using the function handles.
- Updated examples and discussion for current hardware and software are included throughout the text.

Contents

1. An Introduction to Engineering Problem Solving
2. Getting Started with MATLAB
3. MATLAB Functions
4. Plotting
5. Control Structures
6. Matrix Computations
7. Symbolic Mathematics
8. Numerical Techniques

About the Author

Raj Delores Etter, University of Colorado, Boulder



MATLAB® and Its Applications in Engineering, 2/e

Raj Kumar Bansal | Ashok Kumar Goel | Manoj Kumar Sharma

Pages: 624

Year: 2016



About the Book

This popular, application-oriented book has been revised as per the latest version of MATLAB® to capture the recent advances in software. It covers the fundamentals as well as advanced features of MATLAB® and its applications in control systems, neural networks, fuzzy logic, digital signal processing and mathematical methods. This book is valuable both as a textbook as well as a reference book for the theory and practical courses offered to students and practising engineers.

Features

- Based on the latest version of MATLAB®
- More than 30 graphs in color in the chapter MATLAB® Graphics
- List of commands at the end of the chapter for quick recapitulation
- Appendices on graphic user interface and control system analysis using the LTI viewer
- Approximately 250 figures and screenshots
- Programming tips to highlight good programming practices
- More than 250 solved examples and approximately 200 end-of-chapter exercises.

Contents

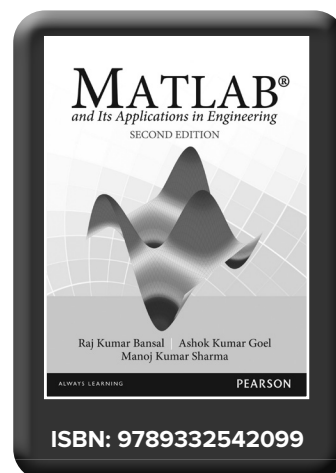
1. Introduction to MATLAB®
2. Constants, Variables and Expressions
3. Vectors and Matrices
4. Polynomials
5. Input Output Statements
6. MATLAB Graphics
7. Control Structures
8. Writing Programs and Functions
9. Ordinary Differential Equations and Symbolic Mathematics
10. Simulink® Basics
11. MATLAB Applications in Control Systems-I
12. MATLAB Applications in Control Systems-II
13. MATLAB Applications in Neural Networks
14. MATLAB Applications in Fuzzy Logic Systems
15. MATLAB Applications in Digital Signal Processing
16. MATLAB Applications in Computational Mathematics

About the Author

Raj Kumar Bansal, Dean Research Guru Kashi University, Bathinda, Punjab

Ashok Kumar Goel, Professor and Head Training and Placement, Giani Zail Singh Punjab Technical University Campus, Bathinda, Punjab

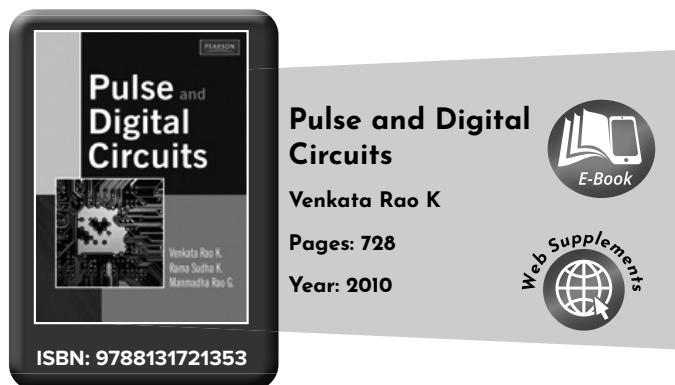
Manoj Kumar Sharma, Associate Professor and Coordinator of Electrical and Electronics Engineering Department, University Institute of Engineering and Technology (UIET) Punjab University, Chandigarh



Pulse & Digital Circuits/Satellite Communications

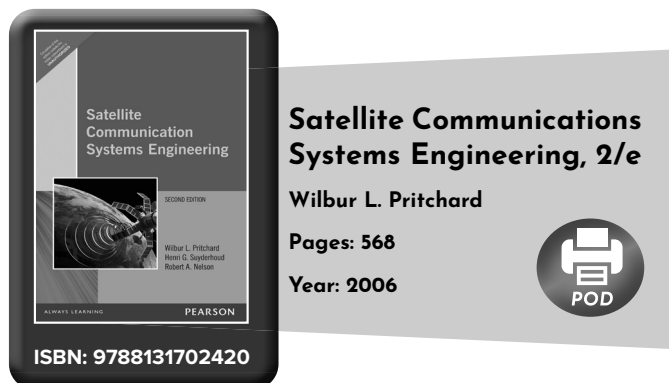
Pulse & Digital Circuits

➡ ALSO AVAILABLE...



Satellite Communications

➡ ALSO AVAILABLE...



Physics of Semiconductor Devices, Updated Edition, 1/e

Michael Shur

Pages: 664

Year: 2019

About the Book

This book provides a practical introduction to the basics of semiconductor physics as well as insights into important developments, such as amorphous silicon, compound semiconductor technologies, and novel heterostructure transistors.

Features

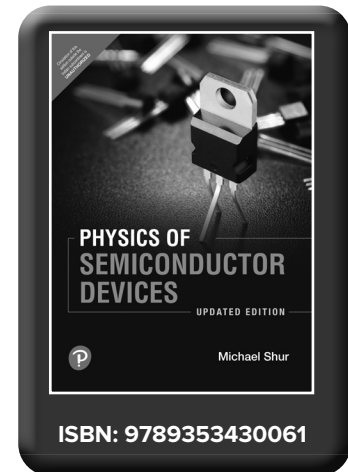
- Implements all theories and models discussed in microcomputer programs
- Providing readers with a useful “toolbox” for the modeling and simulation of semiconductor devices.
- Includes detailed appendices with useful information on semiconductor parameters which help readers to solve practical problems related to the analysis, design, and characterization of different semiconductor devices.
- Includes over 35 microcomputer programs and nearly 150 problems.

Contents

1. Basic Semiconductor Physics
2. p-n Junctions, Schottky Barrier Junctions, Heterojunctions and Ohmic Contacts
3. Bipolar Junction Transistors
4. Field Effect Transistors
5. Photonic Devices
6. Transferred-Electron Devices and Avalanche Diodes
7. Novel Devices

About the Author

Michael Shur, University of Virginia.



Semiconductor Optoelectronic Devices, 2/e

Pallab Bhattacharya

Pages: 664

Year: 2017



About the Book

The first true introduction to semiconductor optoelectronic devices, this book provides, well-organized overview of optoelectronic devices that emphasizes basic principles. This edition has enhanced readability and depth of coverage with expanded explanations of materials, device phenomena, and recent developments in the field. The book's coverage begins with an review of key concepts such as properties of compound semiconductors, quantum mechanics, semiconductor statistics, carrier transport properties, optical processes, and junction theory.

Features

1. Chapter on lightwave networks that reflects the enormous progress in the field of fiber-optic communication and the use of optoelectronic devices for this application
2. New devices such as the quantum cascade laser and the tunneling injection laser
3. More detailed treatment of distributed feedback lasers, surface-emitting lasers, avalanche and metal-semiconductor-metal photodiodes, photo receivers and phototransistors.
4. Includes more worked out examples and problems in every chapter to help both readers and instructors
5. Chapter Highlights sections to highlight new and attractive portions of each chapter
6. Features a wealth of valuable appendices as vehicles for more rigorous treatment of selected subjects

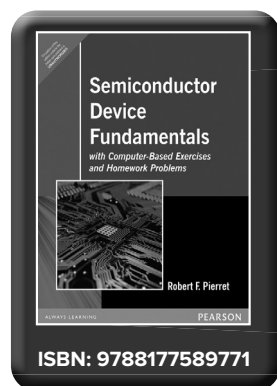
Contents

- | | | |
|--|--------------------------------------|---|
| 1. Elemental and Compound Semiconductors | 5. Light-Emitting Diodes | 11. Optoelectronic Modulation and Switching devices |
| 2. Electronic Properties of Semiconductors | 6. Lasers: Operating Principles | 12. Optoelectronic Integrated Circuits |
| 3. Optical Processes in Semiconductors | 7. Lasers: Structures and Properties | 13. Lightwave Networks |
| 4. Junction Theory | 8. Photodetectors | 14. List of symbols |
| | 9. Special Detection Schemes | 15. Appendices |
| | 10. Solar Cells | |

About the Author

Pallab Bhattacharya is Professor of Electrical Engineering and Computer Science and Director of the Solid State Electronics Laboratory at the University of Michigan, Ann Arbor.

➡ ALSO AVAILABLE...



Semiconductor Device Fundamentals

Robert F. Pierret

Pages: 816

Year: 2006



Digital Signal Processing: Principles, Algorithms and Applications, 5/e

John G. Proakis | Dimitris G Manolakis

Pages: 1172

Year: 2025

About the Book

Digital Signal Processing presents fundamental concepts and techniques of discrete-time signals, systems and modern digital processing as well as algorithms and applications. It covers both time-domain and frequency-domain methods for analyzing linear, discrete-time systems. Rigorous and challenging, examples and over 500 problems emphasize software implementation of digital signal processing algorithms.

Features

- Practical applications include examples, over 500 homework problems, and computer problems.
- Describes techniques to convert analog signals, the analysis of linear time-invariant discrete-time systems and signals in the time domain, and bilateral and unilateral z-transform methods.
- Analyzes signals and systems in the frequency domain, the Fourier series and transform in continuous- and discrete-time signals, and the sampling and reconstruction of continuous-time signals.
- Examines realizations of IIR and FIR systems and techniques to design digital filters.

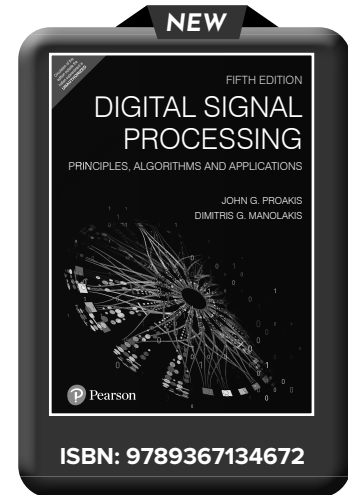
Contents

1. Introduction
2. Discrete-Time Signals and Systems
3. The z-Transform and Its Application to the Analysis of LTI Systems
4. Frequency Analysis of Signals
5. Frequency-Domain Analysis of LTI Systems
6. Sampling and Reconstruction of Signals
7. The Discrete Fourier Transform: Its Properties and Applications
8. Efficient Computation of the DFT: Fast Fourier Transform Algorithms
9. Implementation of Discrete-Time Systems
10. Design of Digital Filters
11. Multirate Digital Signal Processing
12. Multirate Digital Filter Banks and Wavelets
13. Linear Prediction and Optimum Linear Filters
14. Adaptive Filters
15. Power Spectrum Estimation

About the Author

John G. Proakis Northeastern University

Dimitris G Manolakis Massachusetts Institute of Technology



Signals, Systems and Inference

Alan V Oppenheim | George C. Verghese

Pages: 608

Year: 2022



About the Book

Signals, Systems and Inference is a comprehensive text that builds on introductory courses in time- and frequency-domain analysis of signals and systems, and in probability. Directed primarily to upper-level undergraduates and beginning graduate students in engineering and applied science branches, this new textbook pioneers a novel course of study. Instead of the usual leap from broad introductory subjects to highly specialized advanced subjects, this engaging and inclusive text creates a study track for a transitional course.

Features

- Thorough and interesting chapters full of information
- An exploration of fundamental material in an interesting and engaging manner.
- Further Reading sections at the end of each chapter help students gain further knowledge of the subject matter.
- Basic, Advanced, and Extension problems that review chapter material and ask the students to test and apply their knowledge of the subject.

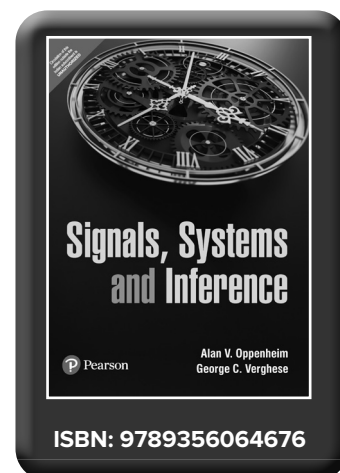
Contents

1. Signals and Systems
2. Amplitude, Phase, and Group Delay
3. Pulse-Amplitude Modulation
4. State-Space Models
5. LTI State-Space Models
6. State Observers and State Feedback
7. Probabilistic Models
8. Estimation
9. Hypothesis Testing
10. Random Processes
11. Power Spectral Density
12. Signal Estimation
13. Signal Detection

About the Author

Alan V. Oppenheim, Massachusetts Institute of Technology

George C. Verghese, Massachusetts Institute of Technology



Signals and Systems, 2/e

Alan V. Oppenheim

Pages: 957

Year: 2015



About the Book

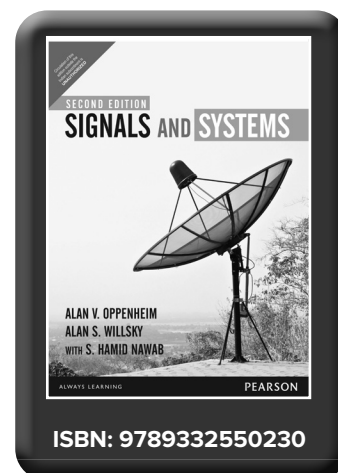
For undergraduate-level courses in Signals and Systems. This comprehensive exploration of signals and systems develops continuous-time and discrete-time concepts/methods in parallel highlighting the similarities and differences and features introductory treatments of the applications of these basic methods in such areas as filtering, communication, sampling, discrete-time processing of continuous-time signals, and feedback. Relatively self-contained, the text assumes no prior experience with system analysis, convolution, Fourier analysis, or Laplace and z-transforms.

Features

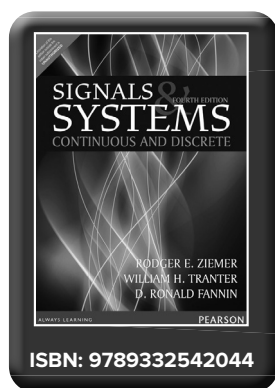
- Develops continuous-time and discrete-time concepts in parallel— highlighting the similarities and differences.
- Introduces some of the important uses of the basic methods that are developed— e.g., filtering, communication, sampling, discrete-time processing of continuous-time signals, and feedback.
- Includes an up-to-date bibliography.
- A companion book contains MATLAB-based computer exercises for each topic in the text.
- Material on Fourier analysis has been reorganized significantly to provide an easier path for the student to master and appreciate the importance of this topic. Now represented in four chapters, each of which is far more streamlined and focused, introducing a smaller and more cohesive set of topics. This will greatly enhance the students ability to organize their understanding of the material.
- Frequency-domain filtering is introduced very early in the development to provide a central and concrete illustration of why this topic is important and to provide some intuition with a minimal amount of mathematical preliminaries. The students will be able to see why this topic is so important and gain some intuition which will enhance his or her appreciation of the developments that follow.
- Much of the advanced material that had appeared in the Fourier transform chapters in the first edition have now been pulled together into the time and frequency domain chapter, so that only the basic concepts are introduced in these chapters; and provide a more cohesive treatment of time and frequency domain issues.
- Relocates coverage of Sampling before Communication.
- Allows instructor and students to discuss important forms of communication, namely those involving discrete or digital signals, in which sampling concepts are intimately involved.
- Includes significantly more worked examples.
- Provides over 600 chapter-end problems,— 20 per chapter, with answers (not solutions).
- Features a majority of new chapter-end problems.
- Chapter-end Problems have been reorganized and assembled to aid the student and instructor. They provide a better balance between exercises developing basic skills and understanding ones that pursue more advanced problem-solving skills. New edition organizes chapter-end problems into four types of sections which makes it easier for the instructor and student to locate the problems that will best serve their purposes; and provides two types of basic problems, ones with answers (but not solutions); and ones with solutions to provide immediate feedback to the student while attempting to master the material.

Contents

1. Signals and Systems.
2. Linear Time-Invariant Systems.
3. Fourier Series Representation of Periodic Signals.
4. The Continuous-Time Fourier Transform.
5. The Discrete-Time Fourier Transform.
6. Time- and Frequency Characterization of Signals and Systems.
7. Sampling.
8. Communication Systems.
9. The Laplace Transform.
10. The Z-Transform.
11. Linear Feedback Systems.



➡ ALSO AVAILABLE...



**Signals and Systems:
Continuous and
Discrete, 4/e**

Rodger E. Ziemer

Pages: 640

Year: 2014

Telecommunication

Telecommunication Switching, Traffic and Networks

J. E. Flood

Pages: 328

Year: 2006

About the Book

This book deals with switching, signaling and traffic in the context of telecommunication networks. Its coverage moves from an introduction to those networks through the evolution of switching systems from electromechanical systems to stored-program-controlled digital systems and future broadband systems. The treatment of Teletraffic Theory includes both lost-call and queuing systems.

Features

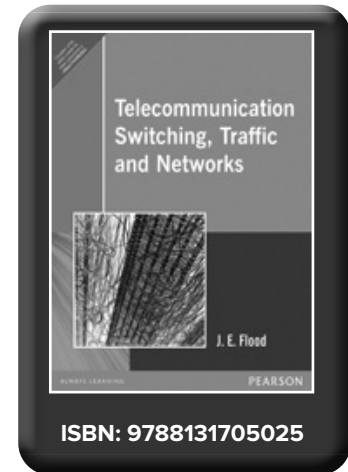
- Modern digital networks
- Modern digital switching systems
- Packet switching
- Common-channel signaling
- Digital transmission, including Synchronous Digital Hierarchy
- Integrated service digital network (ISDN)
- Broadband networks including ATM
- The book fills the gap between texts in telecommunications that only treat networks in a cursory manner and advanced texts that are too specialized for undergraduates. It will therefore become important reading for final year undergraduates and M.Sc. students in departments of electrical and electronic engineering.

Contents

1. Introduction
2. Telecommunication Transmission
3. Evolution of switching systems
4. Telecommunications traffic
5. Switching networks
6. Time-division switching
7. Control of switching systems
8. Signaling
9. Packet switching
10. Networks

About the Author

Professor John Flood, O.B.E., D.Sc., C.Eng., F.I.E.E. is Emeritus Professor at Aston University. He has worked both in academia and in industry and is a former chairman of both the British Standards Committee for Telecommunications and the IEE Professional Group on Telecommunications Networks and Systems.



A VHDL Primer, 3/e

J. Bhasker

Pages: 396

Year: 2015

About the Book

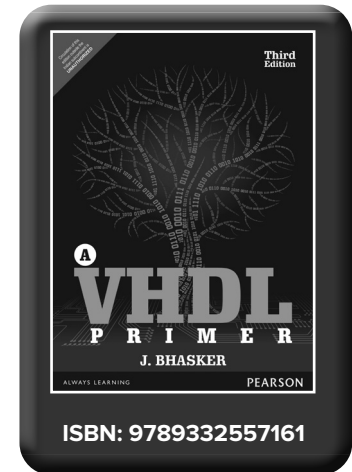
This book introduces the VHDL language to the reader at the beginner's level. It presents a subset of VHDL consisting of commonly used features that make it both simple and easy to use. The extensive hardware modeling coverage includes modeling of regular structures, delays, conditional operations, state machines, Moore and Mealy FSMs, clock dividers and much more.

Contents

1. Chapter 1 Introduction
2. Chapter 2 A Tutorial
3. Chapter 3 Basic Language Elements
4. Chapter 4 Behavioral Modeling
5. Chapter 5 Dataflow Modeling
6. Chapter 6 Structural Modeling
7. Chapter 7 Generics and Configurations
8. Chapter 8 Subprograms and Overloading
9. Chapter 9 Packages and Libraries
10. Chapter 10 Advanced Features
11. Chapter 11 Model Simulation
12. Chapter 12 Hardware Modeling Examples
13. Appendix A Predefined Environment
14. Appendix B Syntax Reference
15. Appendix C A Package Example
16. Appendix D Summary of Changes
17. Appendix E The STD_LOGIC_1164 Package
18. Appendix F An Utility Package
19. Appendix G Solved Questions

About the Authors

J. Bhasker (Ph.D., University of Minnesota) is a member of the Technical Staff at AT&T Bell Laboratories, Allentown, PA, where he is currently working on a high-level synthesis tool that would synthesize netlists from C or VHDL behavioral descriptions. He teaches courses on VHDL and VHDL Synthesis to internal AT&T designers as well as at Lehigh University.



VLSI Design Methodology Development

Thomas Dillinger

Pages: 756

Year: 2020

About the Book

As microelectronics engineers design complex chips using existing circuit libraries, they must ensure correct logical, physical, and electrical properties, and prepare for reliable foundry fabrication. VLSI Design Methodology Development focuses on the design and analysis steps needed to perform these tasks and successfully complete a modern chip design. Microprocessor design authority Tom Dillinger carefully introduces core concepts, and then guides engineers through modeling, functional design validation, design implementation, electrical analysis, and release to manufacturing. Writing from the engineer's perspective, he covers underlying EDA tool algorithms, flows, criteria for assessing project status, and key tradeoffs and interdependencies. This fresh and accessible tutorial will be valuable to all VLSI system designers, senior undergraduate or graduate students of microelectronics design, and companies offering internal courses for engineers at all levels.

Features

- Reflect complexity, cost, resources, and schedules in planning a chip design project
- Perform hierarchical design decomposition, floorplanning, and physical integration, addressing DFT, DFM, and DFY requirements
- Model functionality and behavior, validate designs, and verify formal equivalency
- Apply EDA tools for logic synthesis, placement, and routing
- Analyze timing, noise, power, and electrical issues
- Prepare for manufacturing release and bring-up, from mastering ECOs to qualification

Contents

Preface

Topic I: Overview of Vlsi Design Methodology

1. Introduction
2. VLSI Design Methodology
3. Hierarchical Design Decomposition

Topic II: Modeling

4. Cell and IP Modeling

Topic III: Design Validation

5. Characteristics of Functional Validation
 6. Characteristics of Formal Equivalency Verification
- TOPIC IV: DESIGN IMPLEMENTATION

7. Logic Synthesis
8. Placement
9. Routing

Topic V: Electrical Analysis

10. Layout Parasitic Extraction and Electrical Modeling

11. Timing Analysis

12. Noise Analysis

13. Power Analysis

14. Power Rail Voltage Drop Analysis

15. Electromigration (EM) Reliability Analysis

16. Miscellaneous Electrical Analysis Requirements

Topic VI: Preparation for Manufacturing Release and Bring-up

17. ECOs

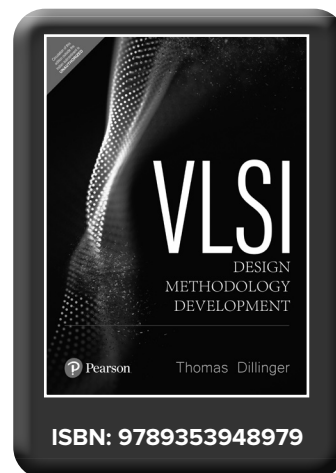
18. Physical Design Verification

19. Design for Testability Analysis

20. Preparation for Tapeout

21. Post-Silicon Debug and Characterization ("Bring-up") and Product Qualification Epilogue

Index



About the Author

Thomas Dillinger has more than 30 years of experience in the microelectronics industry, including semiconductor circuit design, fabrication process research, and EDA tool development. He has been responsible for the design methodology development for ASIC, SoC, and complex microprocessor chips for IBM, Sun Microsystems/Oracle, and AMD. He is the author of the book VLSI Engineering and has written for SemiWiki.

CMOS VLSI Design: A Circuits and Systems Perspective, 4/e

Neil H. E. Weste | David Money Harris

Pages: 664

Year: 2015



About the Book

The fourth edition of the best-selling text details the modern techniques for the design of complex and high-performance CMOS systems on a chip. Covering the fundamentals of CMOS design from the digital systems level to the circuit level, this book explains the fundamental principles and is a guide to good design practices.

Features

- Broad, in-depth, up-to-date, and comprehensive coverage of the entire field of CMOS VLSI design
- Introduces each key element of VLSI design, including delay, power, interconnect, and robustness
- Ample circuit-level coverage, emphasizing practical circuits used in commercial chips
- Illuminates circuit simulation with SPICE through a complete tutorial chapter (Chapter 8)
- Presents extensive coverage of data-path, array, and special purpose building blocks (Chapters 11-13)
- Contains a rich set of problems, worked examples and exercises for learning reinforcement
- Presents “war stories” of “chips gone bad” and their lessons for today’s designers
- Links theory to practice through expert Historical Perspective and Pitfall sections that reveal what’s happening in real R&D and engineering laboratories

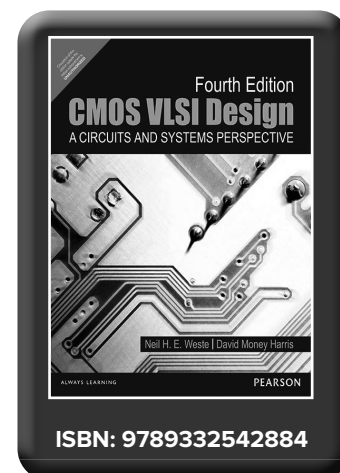
Contents

- | | |
|-------------------------------|---|
| 1. Introduction | 9. Combinational Circuit Design |
| 2. MOS Transistor Theory | 10. Sequential Circuit Design |
| 3. CMOS Processing Technology | 11. Datapath Subsystems |
| 4. Delay | 12. Array Subsystems |
| 5. Power | 13. Special-Purpose Subsystems |
| 6. Interconnect | 14. Design Methodology and Tools |
| 7. Robustness | 15. Testing, Debugging, and Verification |
| 8. Circuit Simulation | Appendix A: Hardware Description Languages |

About the Authors

David Money Harris is an Associate Professor of Engineering at Harvey Mudd College in Claremont, CA, holds a Ph.D. from Stanford University and S.B. and M.Eng. degrees from MIT. His research interests include CMOS VLSI design, microprocessors, and computer arithmetic. He holds a dozen patents, is the author of three other books in the field of digital design and three hiking guidebooks, and has designed chips at Sun Microsystems, Intel, Hewlett-Packard, and Evans & Sutherland.

Neil Weste is a member of the faculty at the Department of Electronic Engineering, Macquarie University; Adjunct Professor of Electrical Engineering at The University of Adelaide; and Director, Engineering at Cisco’s Wireless Networking Business Unit. He has served as department head at Bell Laboratories; leader of design projects for Symbolics, Inc.; and as president of TLW, Inc., an IC engineering company that completed groundbreaking chip designs for companies such as North American Philips, Analog Devices, AT&T Microelectronics and Thomson Consumer Electronics.



FPGA-Based System Design

Wayne Wolf

Pages: 544

Year: 2008



About the Book

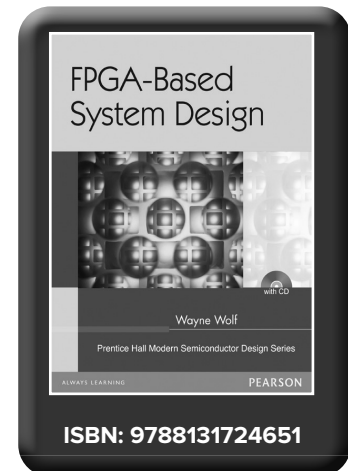
Appropriate for all introductory-to-intermediate level courses in FPGAs, VLSI, and/or digital design. Writing specifically for FPGA designers, Princeton University's Wayne Wolf first introduces the essentials of VLSI: fabrication, circuits, interconnects, combinational and sequential logic design, system architectures, and more. He then shows how to reflect this VLSI knowledge in a state-of-the-art design methodology that leverages FPGAs most valuable characteristics while mitigating its limitations. Along the way, he introduces the basics of Verilog, VHDL, and leading tools for optimizing logic and sequential machine designs. Wolf then turns to the structure of large digital systems, introducing the sophisticated register-transfer design methodology and presenting a simple DSP case study that addresses a wide variety of design problems. The book concludes with a detailed look at large-scale systems built with FPGAs, including platform FPGAs and multi-FPGA systems. *Includes selected content from Wolfs widely-acclaimed book Modern VLSI Design.*

Features

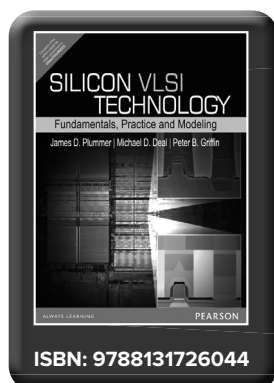
- FPGA-based logic design, in depth.
- Essential VLSI guidance for FPGA designers.
- HDL-based logic design—Makes use of modern HDL design techniques with both Verilog and VHDL.
- Advanced FPGA coverage—Detailed introduction to platform-based and multi-FPGA systems.
- Detailed DSP case study—Includes a start-to-finish case study that touches on a wide range of design problems.

Contents

1. FPGA-Based Systems
2. VLSI Technology
3. FPGA Fabrics
4. Combinational Logic
5. Sequential Machines
6. Architecture
7. Large-Scale Systems



➡ ALSO AVAILABLE...

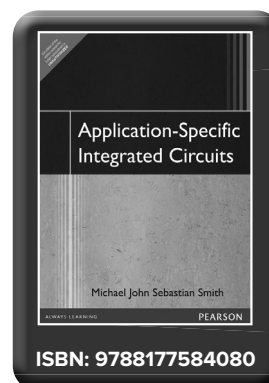


Silicon VLSI Technology

James D. Plummer

Pages: 832

Year: 2008



Application Specific Integrated Circuits

Sebastian Smith

Pages: 1040

Year: 2005

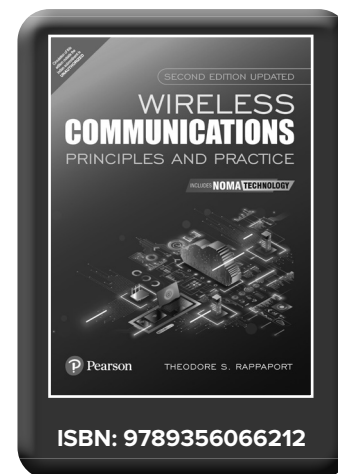
Wireless Communications

Wireless Communication, Principles and Practice 2e (Updated)

Theodore S Rappaport

Pages: 760

Year: 2022



About the Book

Wireless communication: Principles and Practice, Second Edition (Updated) is the definitive modern text for wireless communications technology and system design. Building on his classing first edition. Theodore S. Rappaport covers the fundamental issues impacting all wireless networks and reviews virtually every important new wireless standard and technological development, offering especially comprehensive coverage of the 3G systems and wireless local area network (WLANs) that will transform communications in the coming years. Rappaport illustrates each key concept with practical examples, thoroughly explained and solved step-by-step

Features

- An overview of key wireless technologies: voice, data, cordless, paging, fixed and mobile broadband wireless
- Wireless system design fundamental: channel assignment, handoffs, trunking efficiency, interference, frequency reuse, capacity planning, large-scale fading and more
- Path loss, small scale fading, multiple reflection, diffraction, scattering, shadowing, spatial-temporal channel modelling, and microcell/indoor propagation
- Modulation, equalization, diversity, channel coding, and speech coding
- New wireless LAN technologies: IEEE 802.11a/b, HIPERLAN, BRAN and other alternatives
- New 3G air interface standards, including W-CDMA, CDMA2000, GPRS, and EDGE
- Bluetooth™, wearable computers, fixed wireless, and Local Multipoint Distribution Service (LMDS) and other advanced technologies
- Non-Orthogonal Multiple Access (NOMA) Technology – A requirement of current mobile generation
- Updated glossary of abbreviations and acronyms, and a through list of references
- Dozens of new examples and end-of-chapter problems

Contents

1. Introduction to Wireless Communication Systems
2. Modern Wireless Communication Systems
3. The Cellular Concept—System Design Fundamentals
4. Mobile Radio Propagation: Large-Scale Path Loss
5. Mobile Radio Propagation: Small-Scale Fading and Multipath
6. Modulation Techniques for Mobile Radio
7. Equalization, Diversity, and Channel Coding

About the Author

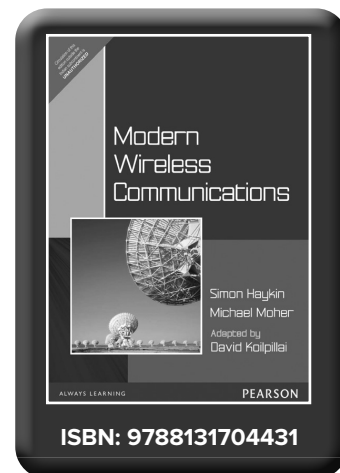
Theodore S. Rappaport is the James S. Tucker Professor of Electrical and Computer Engineering at the Virginia Polytechnic Institute and State University and the Series Editor for Prentice Hall's Communications Engineering and Emerging Technologies Series. In 1990 he founded the Mobile & Portable Radio Research Group at Virginia Tech, one of the first university research and educational programs focused on wireless communication. Rappaport has developed dozens of commercial products now used by major carriers and manufacturers. He has also created fundamental research and teaching materials used in industry short courses and in university classroom around the globe. His current research focuses on new methods for analyzing and developing wireless broadband and portable Internet access in emerging frequency bands and on the development, modelling and practical use of 3-D site-specific propagation techniques for future wireless networks

Modern Wireless Communication

Simon Haykin | Michael Moher | David Koilpillai

Pages: 592

Year: 2011



About the Book

This text provides a comprehensive introduction to wireless communications, unraveling these techniques in an order consistent with the evolution of spectral utilization of the radio channel. *Modern Wireless Communication* begins with a discussion of FDMA systems and traces the progress of wireless communication through TDMA, CDMA, and SDMA techniques, while simultaneously presenting the engineering principles required for each multiple access strategy.

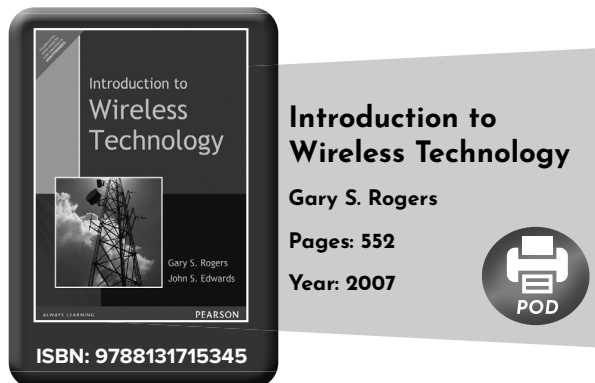
Features

- Concise and Clear Presentation—Gives students the physical techniques behind antennas and radio wave propagation.
- Multiple-Input, Multiple-Output (MIMO) —Provides the first text that treats MIMO and space-time coding techniques at an introductory level
- Worked Examples—Theme examples in each chapter illustrate how the concepts are used in engineering practice
- Comprehensive Appendices—10 appendices added on theories, functions and computer assignments among other intrinsic topics indispensable for a thorough coverage of the subject

Contents

1. Introduction
2. Propagation and Noise
3. Modulation and Frequency-Division Multiple Access
4. Coding and Time-Division Multiple Access
5. Spread Spectrum and Code-Division Multiple Access
6. Diversity, Capacity and Space-Division Multiple Access
7. Wireless Architectures

➡ ALSO AVAILABLE...



Fundamentals of LTE

Arunabha Ghosh | Jun Zhang | Jeffrey G. Andrews | Rias Muhamed

Pages: 456

Year: 2018



About the Book

Long-Term Evolution (LTE) is the next step in the GSM evolutionary path beyond 3G technology, and it is strongly positioned to be the dominant global standard for 4G cellular networks. LTE also represents the first generation of cellular networks to be based on a flat IP architecture and is designed to seamlessly support a variety of different services, such as broadband data, voice, and multicast video. Its design incorporates many of the key innovations of digital communication, such as MIMO (multiple input multiple output) and OFDMA (orthogonal frequency division multiple access), that mandate new skills to plan, build, and deploy an LTE network.

In Fundamentals of LTE, four leading experts from academia and industry explain the technical foundations of LTE in a tutorial style—providing a comprehensive overview of the standards. Following the same approach that made their recent Fundamentals of WiMAX successful, the authors offer a complete framework for understanding and evaluating LTE.

Features

- Cellular wireless history and evolution: Technical advances, market drivers, and foundational networking and communications technologies
- Multicarrier modulation theory and practice: OFDM system design, peak-to-average power ratios, and SC-FDE solutions
- Frequency Domain Multiple Access: OFDMA downlinks, SC-FDMA uplinks, resource allocation, and LTE-specific implementation
- Multiple antenna techniques and tradeoffs: spatial diversity, interference cancellation, spatial multiplexing, and multiuser/networked MIMO
- LTE standard overview: air interface protocol, channel structure, and physical layers
- Downlink and uplink transport channel processing: channel encoding, modulation mapping, Hybrid ARQ, multi-antenna processing, and more
- Physical/MAC layer procedures and scheduling: channel-aware scheduling, closed/open-loop multi-antenna processing, and more
- Packet flow, radio resource, and mobility management: RLC, PDCP, RRM, and LTE radio access network mobility/handoff procedures

Contents

1. Evolution of Cellular Technologies

Part I: LTE Tutorials

2. Wireless Fundamentals
3. Multicarrier Modulation
4. Frequency Domain Multiple Access: OFDMA and SC-FDMA
5. Multiple Antenna Transmission and Reception

Part II: The LTE Standard

6. Overview and Channel Structure of LTE
7. Downlink Transport Channel Processing
8. Uplink Transport Channel Processing
9. Physical Layer Procedures and Scheduling
10. Data Flow, Radio Resource Management, and Mobility Management

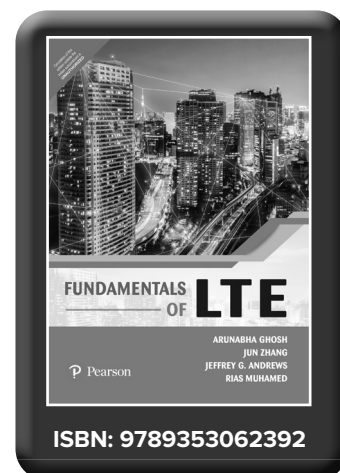
About the Author

Arunabha Ghosh is a lead member of technical staff in the Wireless Communications Group in AT&T Laboratories.

Jun Zhang is a visiting assistant professor in the Department of Electronic and Computer Engineering at the Hong Kong University of Science and Technology.

Jeffrey G. Andrews is an associate professor in the Department of Electrical and Computer Engineering at the University of Texas at Austin, where he is the director of the Wireless Networking and Communications Group.

Rias Muhamed is a director of business development with the AT&T Corporate Strategy and Development Team.



Ad-Hoc and Wireless Sensor network

Shashikant V. Athawale

Pages: 352

Year: 2022

About the Book

Ad-Hoc and Wireless Sensor Network – A book meant for BE, B-Tech, ME, M-Tech, BCA, MCA, BSc, MSc, undergraduate, postgraduates and master's audience with no special computational experiences. This book is written in such a way that all possible topics are covered in order. Though there are many ways to teach a wireless and ad hoc network concept, this book follows a simple fundamentals and basic concept terminology.

Despite the widespread use of wireless sensor networks (WSNs), there are not many books that focuses on the description of algorithms, performance evaluation, and applications of network management strategies in WSNs. Ad Hoc and Wireless Sensor Networks addresses the demand by summarizing cutting-edge approaches to network management in addition to more established methods.

To help the readers understand wireless sensor ad hoc network concepts, this book includes a variety of features designed to enhance great learning experiences.

Features

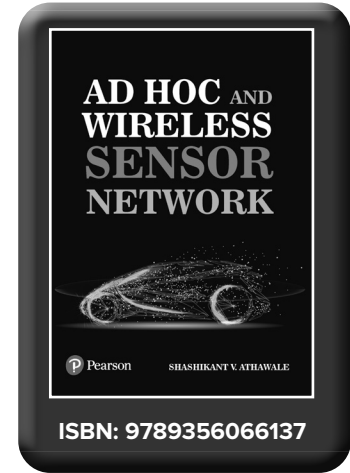
- Figures and Tables: Numerous figures give you multidimensional view to understand concepts. Tables provides a detailed and a comparative view of the topic making it easy to grasp
- Summary: At the end of each chapter gives a brief overview of topics and lets the readers to quickly recall important points and enhances the modern teaching and learning methods
- Recommended Reading: For readers to enhance their learning and understandings, they can refer the recommended reading for more details mentioned at the end of every chapter
- Recommended websites: Nowadays various web pages are the major source and medium to understand the basic concepts and topics, hence Recommended websites plays a vital role
- Multiple choices Question: To test skills, to experience deep understanding of topic and to check critical analytical reasoning skill with close answer sets

Contents

1. Wireless LANS also PANS
2. Ad Hoc Wireless Networks
3. Routing Protocols
4. Quality of Service
5. Mesh Networks

About the Author

Dr. Shashikant V is a highly motivated and dynamic professor, passionate about learning and educating students with engaging lessons. He is an Assistant Professor in Department of Computer Engineering, All India Shri Shivaji Memorial Society's College of Engineering – Pune



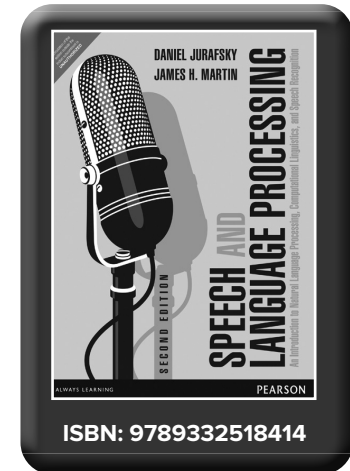
Advanced Communication Systems/Advanced Digital Signal Processing

Speech and Language Processing: An Introduction to Natural Language Processing, Computational Linguistics and Speech Recognition 2/e

Daniel Jurafsky | James H. Martin

Pages: 940

Year: 2013



About the Book

An explosion of Web-based language techniques, merging of distinct fields, availability of phone-based dialogue systems, and much more make this an exciting time in speech and language processing. The first of its kind to thoroughly cover language technology — at all levels and with all modern technologies — this text takes an empirical approach to the subject, based on applying statistical and other machine-learning algorithms to large corpora. The authors cover areas that traditionally are taught in different courses, to describe a unified vision of speech and language processing. Emphasis is on practical applications and scientific evaluation. An accompanying Website contains teaching materials for instructors, with pointers to language processing resources on the Web. The Second Edition offers a significant amount of new and extended material.

Features

- Each chapter is built around one or more worked examples demonstrating the main idea of the chapter - Uses the examples to illustrate the relative strengths and weaknesses of various approaches
- Methodology boxes included in each chapter - Introduces important methodological tools such as evaluation, wizard of oz techniques, etc.
- Problem sets included in each chapter.
- Integration of speech and text processing - Merges speech processing and natural language processing fields.
- Empiricist/statistical/machine learning approaches to language processing-Covers all of the new statistical approaches, while still completely covering the earlier more structured and rule-based methods.
- Modern rigorous evaluation metrics.
- Unified and comprehensive coverage of the field - Covers the fundamental algorithms of various fields, whether originally proposed for spoken or written language.
- Emphasis on Web and other practical applications - Gives students an understanding of how language-related algorithms can be applied to important real-world problems.
- Emphasis on scientific evaluation - Offers a description of how systems are evaluated with each problem domain.
- Description of widely available language processing resources
- Seven new chapters that extend coverage to include:
 - ◆ Statistical sequence labeling
 - ◆ Information extraction
 - ◆ Question answering and summarization
 - ◆ Advanced topics in speech recognition
 - ◆ Speech synthesis

Contents

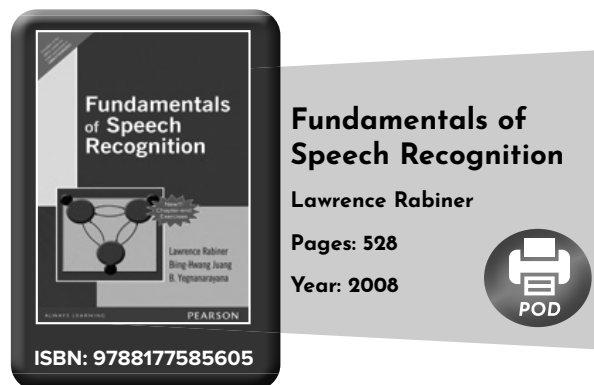
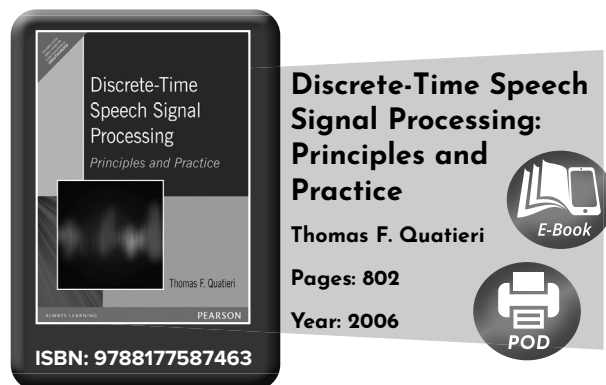
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 - Part V Applications**
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24. Dialogue and Conversational Agents
25. Machine Translation

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Dan Jurafsky is an associate professor in the Department of Linguistics, and by courtesy in Department of Computer Science, at Stanford University. Previously, he was on the faculty of the University of Colorado, Boulder, in the Linguistics and Computer Science departments and the Institute of Cognitive Science. He received the National Science Foundation CAREER award in 1998 and the MacArthur Fellowship in 2002.

James H. Martin is a professor in the Department of Computer Science and in the Department of Linguistics, and a fellow in the Institute of Cognitive Science at the University of Colorado at Boulder.

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